EXHIBIT 1

US00621415581

(12) United States Patent Leighton

(10) Putent No.:

US 6,214,155 B1

(45) Date of Patent:

Apr. 16, 2901

- (50) EADEO FREQUENCY IDENTIFICATION CARD AND BOT LAMINATION PROCESS FOR TRE HANGFACTURE OF BADIO PREQUENCY DENTIFICATION CARDS
- (76) Torontor: Keith B. Leighten, 3817 Palmor Rd., Lorain, OH (E/S) 44053
- (') Notice: Subject to any discharger, the term of this percer is entended or effected under 35

U.S.C. 154(b) by 0 days.

(28) Appl. No.: 10/158,200 (22) Fleat Sep. 22, 1996

Related U.S. Application Date

- (63) Continuation of application No. 05/727,789, Shell on Oct. 7, 1996, note Pat. No. 5,827,207.
 (60) Provisional application No. 60/805,685, Bird on Oct. 17.

(51)	let Ct'	B328 33/3
(EZ)	U.S. Cl	154/396; 156/31

(58) Field of Search _, **156/298**, 312

(SB) Belgraces (No.)

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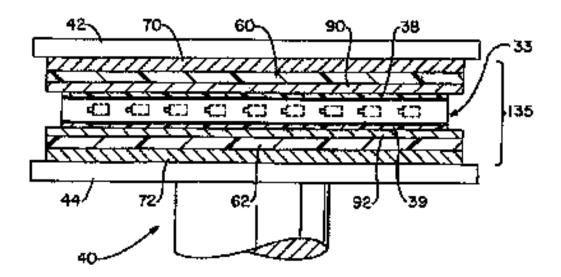
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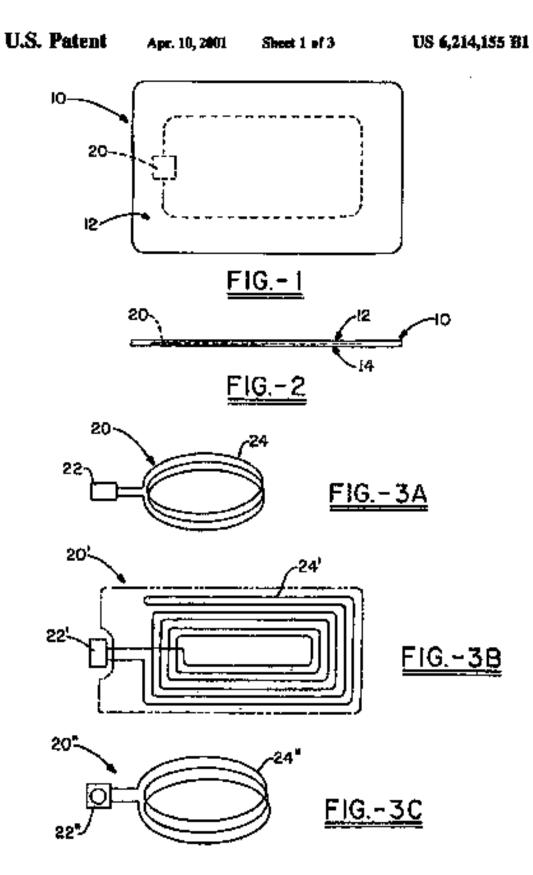
Primary Executes —Proprie J. Loria (74) Alterney, Agent, or First Oldban & Oldban Co., LPA.

ത്ര ABSTRACT

A plantic owd, such as a sadio frequency identification cord, including at least one electronic elegant grahechied therein and a hot lumination patterns for the magnifecture of radio frequency identification costs and other plastic cards impleding a union-chip embedded thanks. The process results in a card having an overall thistopen in the mage of 0.028 lackes to 0.032 inches with a surface suitable for receiving dys subfination printing—the variation is cord (bickness sortes. the surface is loss than 0.0005 inches. A card connectioned in accordance with the personal invention also examples with all indexity accordance and specifications. Also, the bot landmation process of the present invention rasults to an assdesiredly pleasing cost. The invention also relates to a pleasin cost formed in accordance with the test legislation process of the present invention.

16 Claim, 3 Drawing Sheets



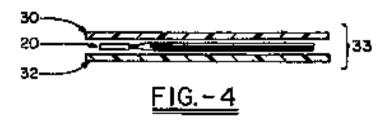


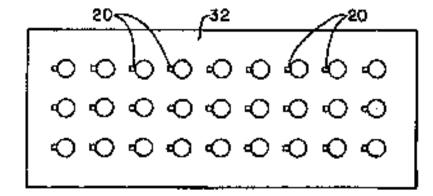
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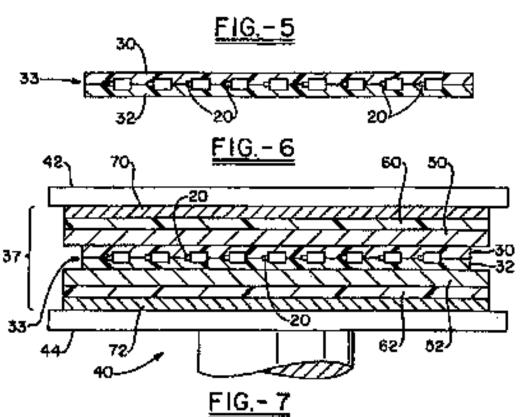
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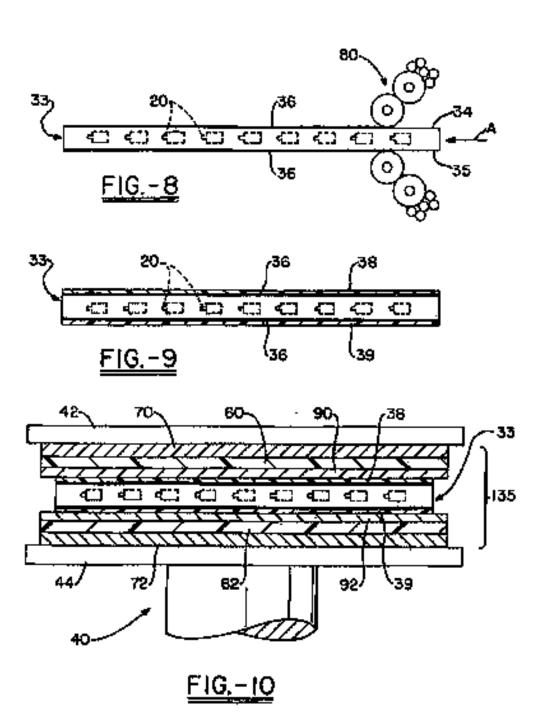
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RADIO PREQUENCY IDENTIFICATION CARD AND HOT LAMBRATION PRINCESS FOR THE MANUEAUTURE OF RADIO FREQUENCY IDENTIFICATION CARDS

This application is a confirmation of Ser. No. 08/727,789, now U.S. Pat. No. 5,817,207 which minim the boquitt of provision of application 00/005,085 filed on Oct. 17, 1993.

PAGED OF THE INVENTION

The present invention relates generally to plastic cards and the constituence thereof, and more periodicity to radio broquency identification (RPID) early and the manufacture of RPID cards that conform to industry size and performance standards and conventions and that have a superior outer surface to known RPID cards such that card may preserve dys sublimation printing or the litte.

BACKGROUND OF THE INVENTSON

As the was of pleasic coads for excit coads, automobil wither machine (ATM) cards, identification cards, and files continues to bocome more widesposal, the problems associsted with the case of such cards correspondingly monuse. Credit card freed and Martification eard freed are becoming as larger problems everythy, and this froud has introduced encertainties into our systems of demonstrate and our encountry systems. Using easily available technology, oriminals are able to manufacture craditables cards, ATM cards, Monti-Service cards, and the like inving another's account code, y jdeptification code, or pilper present information embedded is the magnetic stripe thereof. Thes, for example, crimicals may steel beautrade or thousands of logiticasts crostit and account purchase and mainfacture many additional cards bearing the stokes information. These translatest each are ω then weble by the criminals to purchase goods and to receive cash with the legitimete card holder and the cord hatter left building the fall. Liberaries, so called debit cards are becoming increasingly popular. These such here stand thereon a certain emones of value for which the east owner. 🕳 has previously said. For example, I dabtery risks may purchase a card good for 50 bees, with one face being deducted from the card each time the owner risks the suburry. Criminals have also been able to manipulate the data atored on these cards to defend the merchants and

The case in which eximinely have been able to executiveture and or manipulate known cords results from the culatcace of the casely aboved magnetic strips storage medium. med by known cards. Then, magnetic surject are cardly 50 programmed and reprogrammed using streamonty available technology. Thus, there has been found a most in the plantic card includes to provide a more secure plantic card that is very difficult or impossible to freedadesity medicalses. The most illerly polision to the above-count problems associated #9 with known photo cooks in the RRD card and other cards including computer chips embedded Barrie rather thes, or io additios io, a surgentic stripe. While these RPIU cards and Has been been them to be secrement in proventing or limiting front, they are more difficult and expensive to so physiothers relative to collinary magnetic styles estate. One of the leggest electroles to the wide spread manufacture and see of RFID costs has been for teability of cord menutioments to energiacherer un RPID coud that mosts all industry standards and specifications, such as these set by the laterconformi Standards Organization (ISO), that are militarily scatherinally picesing (wherein the embedded wheterains are

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hidden from view), and that have a sufficiently regular or flat surface such that one or both surfaces of the card any be printed on using the very popular and widespread dye subfination sechnology. Knower plantic camb with competer 3 chips and like embedded therein ups too thick to work to competitut with scheleng card mading mechanicy (ATM machines, elephones, and like) and have a surface that is too bregates to properly and combinate we cover dye subficient to properly and combinately receive dye subficient to properly and combinately the plantic card broughting a computer of the embedded through here resulted to a card with inferior seatherts qualities such as the stillity to see the embedded computer chip through the plantic.

SUMMARY OF THE INVENTION

The present invention is therefore directed to a plastic oud baying at least one electronic element embedded therein and to a hor imminution method for the manufacture of phatic code including at heat one electronic electronic therein. The card has no overall discloses in the range of 0.025 inches to 0.032 inches and comprises a plantic combaring at little time electricis element embedded fluorin With all halfs one of the space and lower surfaces of the carecomprising a certific printed or otherwise applied theorem. An overlaminate thim is preferably provided ever the central market of the same and the remelting care has a variation in thickness access the surfaces thereof of no greater than approximately 6.0005 fashes. The bot hunterties method of the present invaniou comprises the steps of providing first and ancest plants core sheets, positioning as least one ejectropic charact between the first and around note thesis. to thus form a core, and planing the core to a businester and closing the Luminston without applying hardware runs prin-cure to the com. A hou cycle is applied to the com shoots in the luminoser than Especifying or pentially lispariting the shorn. The luminator ram presents in then increased in continuation with the heat. A cooling cycle is then applied to the core to the liquidates, preferably with an esseciated increase to pure pressure, and the core is removed from the hanhator. At least one surface of the ours is five prioted on mány a printing proces or elective printing apparatus, a séact of arrechments film is placed on at least our side of the cort. and the core is then again placed in a luminator. A best cycle is applied to the core with its overhandouts film, and a as cooling cycle in theoretics applied, resulting in a shoot of plantin coul atom; forty which one or more cards may be out. The proping is also directed to a cast manufactured in accordance with the above procuse which results in a plantic card having a thickness in the range of approximately 0.000 inches to 0.052 hacker with a surface amouthness of at least approximately GUIORS lacked as in required by ISIC and Apperferen Mathemal Standards (estrinte (AMSI) atunduris.

The present invention provides measures advantages over brown plantic study and improvipation of a plantic study processes, including the formation of a plantic out with electronic electrons such as a computer chip state-offed thereig with a planting seafactic appearance, with a sufficiently smooth and regular surface such that the out may receive day archimation printing, and with sufficient devability and obspatialistics in comply with all industry specifications and standards.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a pleatic card in accordance with the present invention;

FIG. 2 is a side devational view of the cord shown in FIG. 1:

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FIGS. 3A-3C up top plan visual of various electrosis electrosis of various that every be embedded in a unit in accordance with the paramet invention;

FIG. 4 is an applicable, schedulin view of an electronic absence, position between two places ours abusts to form a 5 core:

PEC. 5 is a top plan view of a glurality of electronic elements positioned as a sheet of plants core stock such that they may be covered by a similar sheet of core stock;

FIG. 6 is a schematic cross-sectional view of one or more electronic elements positioned between absolute of plantic some electric.

FIG. 7 artisomatically illustrates a book competiting the core, as it is positioned in a localisator apparatus;

PIG. 8 schematically filtratistic the core as it is being printed on other sensoral from the luminator soling a printing press or similar printing apparatus;

FIG. 9 is a propose problems view achematically (Magneting the application of an overlaminate (Day to at Seast one side of 22 the costs.)

(I)G. 30 extensionly limitates the case with averlanduse flow, as it is placed in a tembeter for first processing to from a shoot of card steel.

DETAILED DESCRIPTION OF THE DIVENTION

The passent investion relates to a plustic and including at least one electronic attental ambedded therein. The protect is invention also relates to a but lumination process for the quarafacture of plantic costs, and more particularly to a bot lumination process for the quarafacture of plantic process for the manufacturer of plantic orde that include an absolutoric element, such as a computer ship or other electronic element embedded therein. The electronic grades array portors a wide variety of functions and toler a wide variety of functions and toler a ratio which a character electronic element controlled therein, with hereinafter be referred to at ratio frequency identification (RED) capts. The present invention also relates to a card so formed intersectance with the invention.

Referring ones to PIG. 1, there and be soon a plantic RFID and if manufactured in secondaries with the present investion and instanting an electronic olymput 26 umbedded faments. Card 19 includes in apper market 12 and a lower of surface 14. Electronic chances 30 may take a wide variety of forms and perform a wide variety of functions. As shows in FICES. 3A-3C respectively, electronic element 20, 27, 27 may be provided by a minu-ship 22 including a wire entrare 24 governoed Hersto, a micro-chip 22° and a calcult on board entrare 24°, a read/write micro-chip 22° and a wint cost assesse 24°, or any other suitable statement element. These electrosic elements 24, 29°, 29° and their knorthes into plantio cursis is and saw, however, the present invention perpires a new lest transportion process for manufacturing photic cards 18 with these electronic electrons 20, 20°, 30 ombodied flustein such that the cards 18 are of a separity quality, unch that the cards 16 ment all ISO and other including specifications and standards, in such that of heat can of he apper and lower surfaces 12, 14 of cost 16 is so entimently amough and is otherwise in capable of receiving dye sublimation printing. Specifically, a court in ascerdance with the present invention has a fibriliance of approximately in the range of 0.028 fashes to 0.032 latters with a surface amouthous of 0.0005 imbox.

As shown in PACS, 4-10 one or more could 10 in accordance with the present invention may be assemble turned

by positioning an electronic element 26 between first and end shoots of card stock 30, \$2 to form a core 33. Perfectedly is shown in PIGS. 5-10, a plurality of cards are manufactured simultaneously, in firm, a plurality of site-tronic numeric 20 are positioned between the first and accord sheets of plustle core stock 30, 32 (only the second sheet 32 begin shown in FIG. 5 for clarity). When a plurality of electronic phononic 20 are positioned between first end second about plastic care stock 34, 32, electronic elequinas 38 are properly positioned relative to our another such that a plantality wards every be out from the standing eard stock. Plastic core shorts 39, 32 may be provided by a wide variety of plantics, the performed being polyways chloride (FVC) having a discharge to the range of 0.007 leades to 0.024 inches and pusherably having a discharge of approximately 0.0125 lumbes such. These skilled in the set will recognite that the Chickness of the plastic core abusts will depend upon the thickenes of the cap or more electrosic electrosis (but are to be embedded thereforeseen. Other estable pleasure that may be utilized include polyester, ectylenitale-butationsstyrene (ABS), and my other sultable plantic.

Subsequent to placing can or many abstracted elements 20 between the first and second objects 30, 32 of plantic compresses to form a case 33, this core 33 is planted in a implement appearant the try of the type will known in the set of plantic core appearant planter plantes 40, 44 for applying pum presses in an article positions of the observers. In addition to the stilling to apply man presses, businesses 40 is positionably of the type is very more presses. Summany 40 is positionably of the type is trying committed plantes 42, 44 that may provide both hast and child cycles and preferably includes cycle times to regulate cycle time. Core 33 is positional between last and accord laminating plants 50, 53, one of which is preferably easier flaibled to provide luminated core 33 with at least one section of other surface. Pirot and second laminating pade 50, 52 and flast and accord steel plants 70, 72 are blaveries positioned outside of pade of 60, 60 and the material accorded positioned to positioned in laminator 40 between position 42, 44.

Oues book 35 is positioned to invalence 40 as shown in PRG. 7, the first instination cycle is initiated by closing inactivator plateau. 42, 44, perfectibly applying little in an sa peasure to book 38. A laminator best cycle is initiated, belowing the temperature of pleases 42,44 up to a range of 275° J. to 400° P., and mean probably up to a rings of 900° F. to 370° C. Joy a period of greater than 5 minutes, and probably in the cases of 7 to 10 minutes. Once the best cycle has been applied in the book 35 as is set facts shown, the run possesse of leadanter 48 is increased to facilitate the flow of the plastic corp shorts 39, 32 so that the due or more electronic elements 28 are encapsulated share by, and so that shorts 34, 32 form a uniform core 33 (sorm most elevely in FRGS. 2-10) with upper and lower surfaces 34, 36. As mentioned, the use of males finished lensions to plate 50, 52 provides markets 34, 36 with a slightly stugiented or extend quality which will facilitate the application of a coating thereto as is discussed below. The run prosuper applied during the heat cycle and the longth of the heat cycle may very depending aspecially open the stee of stoots 34, 32. For coverple, the open time may be in the energe of 19-15 minutes. In our comple, a run pressure of 948.135 possess per square loch (p.s.i.) was applied for 10-15 calcutes to from a sufficien core 33, using streets 38, 32 of a size in the range of 12 inches by 24 inches to 24 inches by 36 inches.

Subsequent to the above bast syels, leminator 40 applies a chill syels to book 35 during which time the ram promute.

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of the teminator 46 in increased, professibly by approximately 25% and the phases 42, 44 have cooled to approxiemately 40° R to 65° P. for approximately 10–15 minutes. Core 33 may then be removed from landactor 46 for additional processing.

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Subsequent to the removal of ours 39 from huminator 40, and as Whatmand in PLO. 5, one 33 is cound on at least one of it's upper and lower surfaces 34, 35 with a layer of printing ink 36. This easy he accomplished asing a wide variety of printing techniques such as offset printing, laborposes printing, acrees printing, refler conting, spray printing, litho-minting, and other salable prioring techniques. As shown in PRG. 8, cost 33 is fed in the direction indicated with appear A through a printing press, a Militegraphic printed. or a similar appendes 69. This printing step is performed to unal at least one ambies 34, 35 of core 33 with a layer of aculactically plousing fee 36. This layer of ink 36 coursescally hides the one or more electronic elements 20 that we embeddel within core 33, and prevents these one or more electronic elements 24 from showing through the relatively 30 steps of thin care 33, to this meaner, the one or more allocated elements 20 sumpretated is non 33 are constictely bidden from view without requiring the placeto used to the manu-Income core 33 to be exceededly thick.

Referring new to PTOS, 9-10, the local presenting of core 25 years of the state of overlaminate this made as clear contribution film Mt. 39 is positioned on at least one late contribution of the of core 33, and preferring core 33 in positioned between two 30 similar shoots of overlaminate film 38, 79 at shown. Overlaminate film is very fain, for example in the range of 0.0015° thick. A book 135 is then constructed for inscribes into laminates 40 at in achematically Rhotrated PtO. 10. Book 135 comprising core 33, including all least one layer of 33 ink 36 and at least one layer of overlaminate lim 35, 39 it positioned between instinating plates which are professibly highly pollated plates such as others. To histor senial assistance and laminating parts 60, 63 and fine and account stool plates 79, 40 72 as in discussed above in relation to PiO. 7.

When book, 135 is positioned between upper and lower places 42, 44 of immission 49 as shown in FIG. 18, the luminature is closed and a hast cycle in the surge of 189° R. to see to 300° R, and most preferably in the stage of 180° R to see 275° R, is applied to book 135 for a period of 10 to 25 mission with A pass present that varies depositing upon sheet size or the ram size of the huminator 46, but which is typically approximately 1006 pash with as 15 inch dismester rea. The lastinator 46 is the case of the success a child cycle, preferably with a consequenting increase is runs present. A runs presente there a period of 10 to 25 mission. A runs presente therein and furphinimatally 25% over the presente state used for the heat cycle has been found to be most to preferable.

Subsequent to the shore described sound limitation typels as librarmed in FIG. 10, a short of pleatic used stock is provided which comprises at feast core 33 with at least one surface 34, 35 thereof covered by a layer of lock 36, and with so at least one surface 34, 35 thereof covered by a layer of overtandness film 36, 39. Probability pleate used stock sumplications in accordance with the present invention comprises core 35 covered on both surfaces 34, 35 with a layer of lock 36 which is possible out between layers of sovertandness film 33, 39, all of which has been less present together as characterists. One or more cards 10 then may be out

from the resulting plantic card mack and card 10 will have a thickness in the range of 0.028 inches to 0.032 inches with variation in everall thickness across the surfaces 12, 64 Octool being no greater than approximately 0.0005 inches. The can or more caple 10 can thus be said in have a surface approximately 0.0005 inches or better. Thus, a card 10 manufactured in accordance with the present investigation inches as least one arrives 12, 14 as preferably both surfaces 12, 14 that are sufficiently encount and regular to receive the subliquation printing.

Those stiffled in the set will recognize that the foregoing description has set forth the probated authoritants of the investion in particular detail and it even be understood that oursement problifications, substitutions, and changes may be undertaken without departing from the true spirit and scope of the possent invention as defined by the casuing claims.

What is claimed for

- A process for incorporating at least one electronic element in the manufacture of a plantic cust, comprising the stems of:
 - (a) providing first and exceed plustic core electric
 - (b) positioning said at least our ejectronic element in the shance of a near-electronic currier directly between said first and second giantic core sheets to foun a core, said plastic core sheets defining a pair of inner and outer surfaces of said core;
 - (c) positioning said costs in a heatmator approximat, and subjecting said costs to a heat and pressure cycle, said heat and pressure syste comprising the stope of:
 - (i) heating said core for a first period of time;
 - (ii) applying a first promote to said down for a second period of since such that said at least one electronic element is exceptionabled by said corre
 - (iii) cooling said care while applying a second pressure to said core,
 - (4) applying a layer of overlambatic film to at least one of said poter surfaces of said said.
- 2. The process for incorporating at least test abstracted attender to the manufacture of a plustic card as racine in claim 1, wherein said landauer apparatus has first and accord landauing places, at least one of said first and second faminating places beying a matter fields for creating a baxtered surface on at least one of said outer surfaces of said.
- 3. The process for incorporating at least one electronic element in the manufacture of a plantin ened as recited to claim 2, wherein made of said first and second luminating plates have mette leads for evening said extracted surface on both of said outer surfaces of said over.
- 4. The process for incorporating at least one electronic element in the manufacture of a ploude card as recited in stalls 1, whereis said flast and record ploude over chocks are made from a renewal material flow the group consisting of polyving i chloride, polyvente, and acrytonic behavious myreso, each of said streets beyong a thickness in the magnet 4,007 so 0,004 facts.
- The process for incorporating at least one electroble element in the manufacture of a pictatic card as recited in etales 4, wherein said first god second plastic care sheets have a fidelesses of space-demands PDI27 leads
- here a finishmen of approximately \$10.25 leads.

 6. The process for incorporating at least one electronish attends in the mountaines of a plastic curd as registed in claim 1, wherein solid process presents in greater than said time presents.
- 7. The process for incorporating at least one electrosis observed to the quantisature of a plantin could as recited to

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chite 6, Wherein stid strond pressure is at least approximately 25% greater than eald first process.

4. The process for incorporating at least one electronics structured in the computation of a pleasin could as account in chain 1, whentie state cour in bested in step (\$\phi\$) to a 5 temperature in the range of \$ZTS'\$ R to 400' R and said family period of sizes is at least five (5) admits.

9. The process for impropositing at least one electronic element in the magnifecture of a plantic cord an recited in cloth 1, wherein said that pressure is approximately 2000 to paid, and said second praired of time in a bact 10 minutes.

- 18. The present for impropositing at least one electronic element in the manufacture of a plantic card as raction in claim k, wherein said step (d) of applying a layer of ovariantims like straighten the farther steps of
 - (a) positioning at avertanismic flor on at least one section of stid core;
 - (b) subjecting sald core to a second heat and pressure opole conspiring the steps of:
 - (3) heating paint core to a temperature between approach makely 175° R to 300° R for approximately 18 to 25 actions.
 - (ii) applying approximately 1000 p.s.i. prossure to said core, and
 - (iii) cooling said core to a compension in the range of ⁵⁵ approximately 40° R. to 65° R. for approximately 10 to 25 matratos.
- 21. The process for incorporating at least one electronic electron in the manufacture of a plantic cast on medical in claim 1, wherein said at least one electronic element is a salaro-chip and an associated wire sateness.
- El. The procum for interpretating at least our electronic element in the mountainme of a photic card as recited in

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ciries 1, wherein said at least one electronic element is a sufere-chip and to associated circuit forard principal.

- 13. The process for incorporating at least one electronic element in the manufacture of a plantic card as modest in claim 3, wherein said at least one electronic element is a stad white integrated chip and an especiated automa.
- 14. A plantic card constructed in accordance with claim 1.
 15. A bot famination process for the manufacture of plantic cards, said process comprising the steps of:
- (a) providing time and accord plantic core sheets;
- (b) positioning at least one electronic element in the observe of a non-electronic carrier directly between said first and accord plantic core shorts to form a jaywed core;
- (c) positioning said core to a luminator apparatus, and subjecting said core to a best not pressure cycle, said best and arranger crede comprising the steep of:
 - heat and present cycle comprising the steps of:

 (i) heating said core in said inministry, in the presence
 of a minimal first ram presence, to a temperature
 which crusts controlled flow of said plantic which
 makes up said flot and second plantic core always;
 - (3) applying a accord pressure uniformly severs and core for encapsulating said at least one electronic element within and controlled flow plantic;
 - (iii) wheneverly conting said core in conjunction with the concurrent application of a third pressure suiformly across said core, said core including and apper and lower surface.
- 16. The method as recited in chirto 15 wherein said fluid and second core layers are devoid of any approximate outcosts.

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EXHIBIT 2



United States Patent (19)

Leighton (cs) Date of Patent:

[54] RADIO FREQUENCY IDENTIFICATION CARD AND HOT LAMINATION PROCESS FOR THE MANUFACTURE OF RADIO PREQUENCY IDENTIFICATION CARDS

[76] Inventor: Keith R. Leighton, 2017 Felimer Rd., Lorein, Ohio 44053

[23] Appl No.: 727,789

[22] Filok Oct. 7, 1996

Related U.S. Application Date

60	Provintensi applikuden Ma. 60005,685 Oct. 17, 1905.
52]	h4. CL*
132	U.S. Cl
\$E	Field of Swarch
	156311, 20

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5.057.008	11/1991	Market et al

(11) Putent Number:

5,817,207

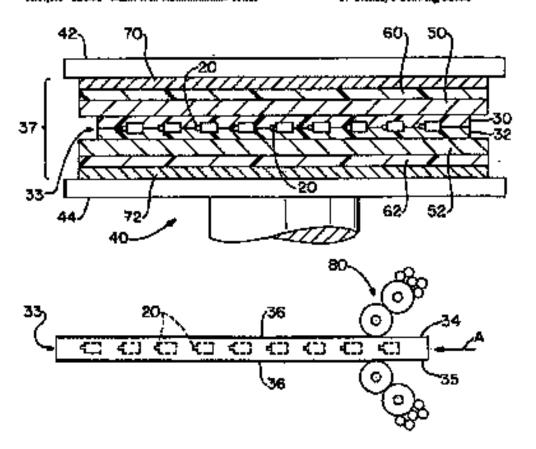
Oct. 6, 1998

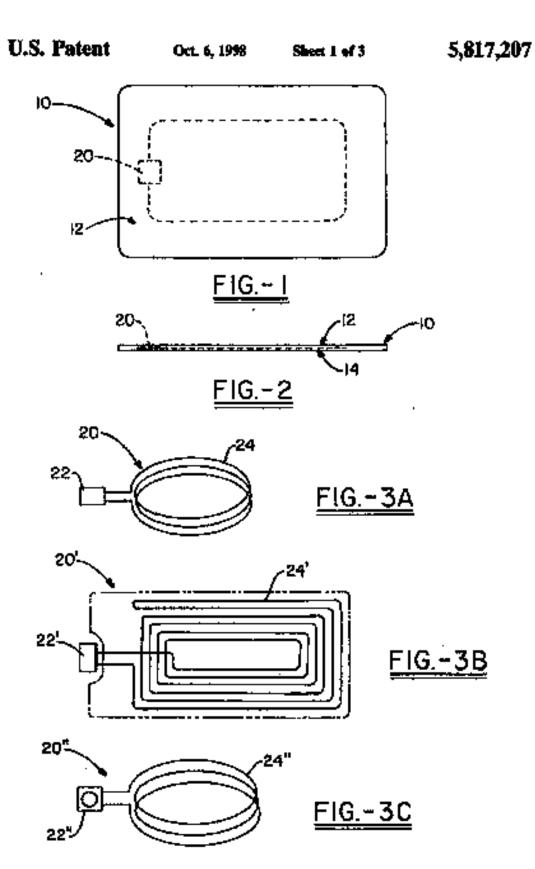
Primary Escalary—Francis I. Lorin Asservey, Agent, or Phys.—Oldham & Oldham Co., LPA.

1571 ABSTRACT

A plastic eard, such as a radio frequency identification card, including at least our absorption element materials of tragic and a hot lemination process for the manufacture of radio frequency identification each and other plastic cards including a micro-chip embedded threats. The process morths in a card hering so over it thickness in the range of 0.003 inches to 0.932 inches with a surface satisfals for necessing dye subfinishing printing—the verticals in card thickness exposs the surface is less than 0.0005 inches. A card manufactured in accordance with the present investigation also complies with all industry standards and specifications. Also, the less busination process of the present investigation results in an accidentic standards of the present investigation also misses in a plastic stard formed in accordance with the bot fundamental process of the present investigation.

17 Clokes, 3 Denving Shorts



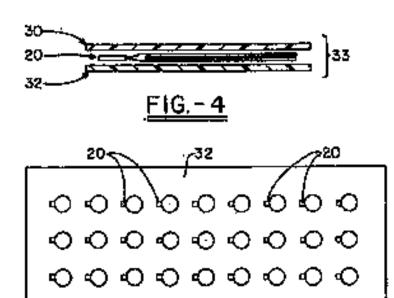


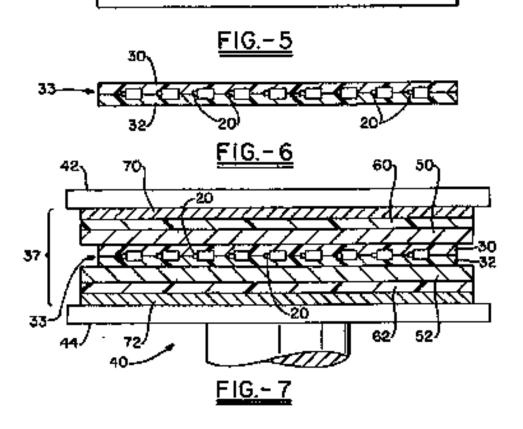
U.S. Patent

Oct. 6, 1998

Sheet 2 of 3

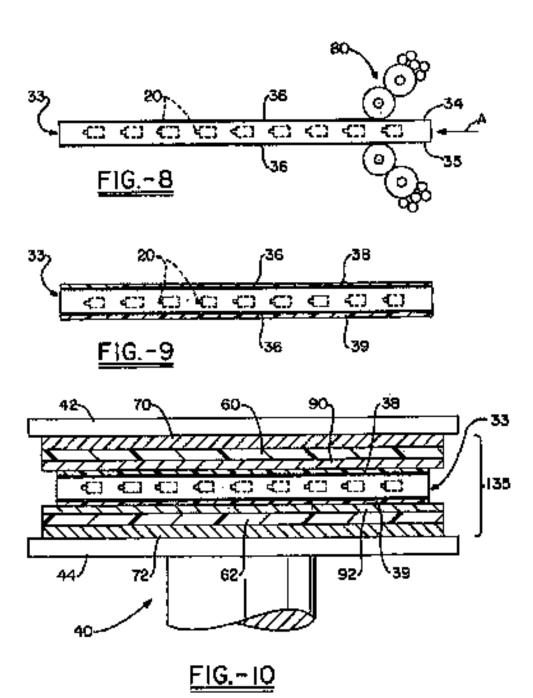
5,817,207





U.S. Patent Oct. 6, 1998 Sheet 3 of 3

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5.B17.207

RAIRG PREQUENCY IDENTIFICATION CARD AND HOT LAMINATION PROCESS POR THE MANUEACTURE OF BADEO PRINCIPLE TOWNSHIP CASTON CARDS

This application elains the benefit of the fallowing: U.S. Provisional Application No.: 50005.685, 694s; data Oct. 17.

MELD OF THE INVENTION

The present invention release generally to plante castle and the manufacture thereof, and more purticularly to radio frequency identification (RFID) cards and the manufacture of RFID about that confirm to industry size and performance standards and obsymptions and that here a superior. pater earlies to known RFTD cards such that dard may poorlys due amblituation printing or the like.

BACKGROUND OF THE INVENTION

As the one of plantic cards for credit cards, submissed sellor machine (ATM) ouchs, identification cachs, and the contracts to become more winterpress, the problems succhild with the sax of such cuids correspondingly impress. Confit card based and Monthleather card front are becoming at larger problems everyday, and this found has introduced and the man our systems of commence and our mounty systems. Using easily available technology, criminals are able to manufacture creditabilit cards, ATM cards, identidection such, and the life inving mother's second cole, as identification code, et other personal information emissioni in the magnetic stripe thereof. Thus, for smarple, crimicals gray steal brandreds or thousands of lighteraric credit card account product and consulation many additional cards bearing the stelen infermention. These freededors much see 35 then truthe by the criminals to purchase greats and to receives each with the logithmate cond leader and the cond larger left leaking the bill. Librarius, so called debit canin are becoming increasingly popular. These cards have stored therebe a curvalar amount of value for which the card owner to has perviously paid. For example, a subway sider easy pareinne a mail good for 50 fares, with one fare being destrated from the capit much firm the sweet rides the palyway. Drierinals have also been able to manipulate the data stored on these cands to defrand the manthems and as confi

The sum in which criminals have been this to manufactare and or equipment known code results from the codeence of the casily street magnetic stript storage medien used by become cards. These magnetic stripes are study a programmed and reprogrammed using community arabbits technology. Thus, there has been found a need in the plants card industry to provide a more severe plantic card that is very difficult or impossible to translationly consignate. The most thinly animina to the above-noted problems associated: \$5 with known plants copie at the APID card and other cards including comparer chips embedded therein suther them, or in addition to, a magnetic stripe. While flow RPID estate and the have been found to be encounted in proventing or mandacture culture to continuely engantic strips curie. One of the biggest obstacles to the wide special microfacture and on of RPID carts has been the imbility of card manufac-toping to manufacture at RPID card that mosts all industry standards and specificularies, seats to those and by the later- #1 national Standards Organization (ISO), that are sufficiently mathetically pleasing (wherein the embedded playtropies are

hidden from view), and that have a sufficiently regular or flar market such that one or both purpose of the card may be printed on using the very popular and widespool dye sublimation technology. Known plantic cards with computer a chips and him controlled therein are too thick to work in connection with existing case routing machinery (ATM machines, sciophones, and like) and invest a machine that is too magains to properly and consistently receive dye autiliza-tion printing. Participants, prior magazis to magainstant a is sufficiently this plantin said including a computer chip combenied therein have resulted to a cost with inflator. restbette qualities each as the shillity to see the embedded computer chip through the plantin.

SUMMARY OF THE INVENTION

The present invention is therefore directed to a plastic card leaving at least one electronic element emission fluorin and to a too lumination method for the assemblement of plants cards including at least one electronic district therein. The card has an overall thickness in the cause of 0.038 faction to 0.032 faction and comprises a plantic conhaving at least one electronic classest emicoloi thereis with at least one of the square and lower surfaces of the core comparising a conting printed or otherwise applied thereon. An overlanding biles is professity provided over the control surface of the core and the remaining card has a variation to thickness agrees the surfaces thereof of an greater than appearitmently 0.0005 locket. The hot learnested method of the present invention completes the steps of providing firm and account plantic core should, positioning at least one electronic planeant between the first and second core stocks to they from a core, and placing the core in a laterizative and choice the hundrator without applying landarine run pris-ears to the case. A best cycle is applied to the core shocks in the luminator than Depotying or partially Departying the shoets. The leminator care pressure is then increased in combination with the last. Accoling cycle is then applied to the core in the humbartor, profundly with an associated increase in tem pressure, and the core is semested from the faminator. At host own markets of the core is time printed on using a printing prose or similar printing apparatus, a citori of proclamicate film is placed on at least one side of the core, and the core in these again placed in a leatineter. A heat cycle in applied to the case with its evertendoric film, and a unling cycle is thereafter applied, matring in a sheet of harde card most from which one or more earth may be out. Place to entition is also directed to a card manufactured in somediance with the above precess which results in a physic card lawing a thickness in the range of approximately OUES inches to 0.032 leaders with a surface amonthment of at least approximately 0,0005 inches as is required by ISO and rrican Nacional Standards Institute (ANSI) etandards.

The present invention yearities executors advantages. over known plastic cards and known plants and muscletoying processes, including the fermation of a plastic card with electronic elements such at a competer chip embedded Course with a pistering continue appearance, with a selfcloudy amonth and regular surface stock that the stock stary monion dys astillastics printing, and with policies data finaling there, they are more difficult and exposure to 60 billity and characteristics to comply with all industry specificetions and standards.

RERE DESCRIPTION OF THE DRAWNGS

FIG. I is a top plot view of a pleatic case in accordance with the present investigat;

Fig. 2 is a sixte elevational view of the confidence on Fig.

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FIGS. 3A-3C are top plan views of verious elements elements that easy be embedded in a cord in accordance with the present investion;

P(C). 4 is an explained, softwarely view of an electronic element position between two plantic core electe to form a 3 cost:

PRL 2 is a top plan view of a plantity of electronic electrons positioned on a closet of plantic core stock such that they may be covered by a similar sheet of ours stock;

FIG. 4 in a uniormatic errors sectional view of cost or more electronic attenuate positional between abouts of plantic cost stock:

FIG. 7 actions individually illustrates a book comprising the man, as it is positioned in a fundament apparatus;

FIG. 8 achievatically illustrates the core as it is being printed on effor numeral from the luminator using a printing press or similar printing apparatus;

Fig. 5 is a cross-socious) view achoestically illustrating the application of an overlandante film to at least one side of 20 the core;

PIG. 16 schesspically Almanasa fits over with overlassicate film, as it is placed to a luminoser for final processing to form a about of card motic.

DETAILED DESCRIPTION OF THE INVENTION

The process invosting relation to a placific cord including at best one electronic element embadded sheetin. The present princention who relates to a bet tantisation process for the generalization process for the magnifications of plantic cords, and more particularly to a hot leadingtonic process for the magnifications of plantic cords that include an electronic element, such as a computer offic or other electronic element ambedded theorie. The alectronic abstract may perform a wide variety of functions and take a wide variety of functions and take a wide variety of flame. Such capts, without regard to the performer electronic alternate embedded throsis, with hose-junities he referred to an earlie frequency identification (RFID) cards. The present invention ship values to a cord of formed to accordance with the invention.

Reducing now to FIG. 1, there can in man a plantic RFED and 10 magainment is accordance with the present leveltion and including an electronic element 20 embedded therein. Cord 10 includes us upper methes 13 and a lower 45 surface 14. Electronic element 20 may take a while veriety of forms and perform a wide variety of franticus. As shown in PMI. 3A-3C respectively, electronic element 20, 20, 20° cmy be pervised by a micro-chip 21 including a wire towns 24 committed thereto, a micro-chip 22° and a circuit. board automa 24, a quadrentia calcus-chip 22° and a wire coil success 24°, or any other aminolis electronic element. Thron clearante elements 28, 29', 39' and their innertion into plante cereis is not over, however, the present invention provides a new hot fundation process for mentilectring plastic cards 18 with those observation atomics 20, 20, 20 ambedded therein such that the cards 10 are of a superior quality, such that the cards 10 most all ISO and other industry specifications and standards, in such that at least case of the appear and lower earthorn 12, 14 of card 10 is as sufficiently amount and is otherwise is supable of receiving dye sublimation printing. Specifically, a coul in attornium with the persont invention has a thickness of approximately in the range of 0.028 lepton to 0.092 meters with a strikes. parenthesis of 0.0005 juries.

As shown to HGS. 6-29 one or more cards 20 in accordance with the present invention may be assured

by positioning an electronic element 20 between first and mound about of earl stock 10, 22 to form a cost 33. Praisonbly is shown in PIG. 5-10, a plantity of outsit are associationed eliminates early, in these, a phospiry of electroute elements 30 are positioned between the first and second shows of plantic cross stock 34, 32 (only the second short 32 begin shown in FRC, 5 for clarity). When a plurality of electronic elements 29 are positioned between first and second shouts plantic corn stock 30, 31, electronic elements 20 are properly positioned relative to our custor such that a plantify cards may be out from the resulting card stock. Plastic core stock 30, 32 may be provided by a wide variety of plustics, the preferred being polywhyd chloride (PVC) laying a deletence in the mage of 0.087 factor to 0.034 inches and praintably having a thickness of approximately 0.0125 inches each. These skilled in the set will encognise that the strictment of the plantin some about will depend upon the thickness of the one or some allocates it observes that we to be controlled therebetween. Other exitable plantes and may be addited include polyecter, acrylomicals-inventionsstyreno (ARS), and say other enitable plattic.

Saturequest to placing one or more alsotratic elements 26 between the first and atment about 30, 32 of plantic core stock to form a core 33, this care 33 is placed in a lessinator apparatus 46 of the type well known in the art of plantic card manufacturing. As is above in PEC 7, because of blacked apper and lower plants 42,44 for applying our penature to us article positioned threshourses. In arbition to the ability temply two pressures, hardware 0 in profession to the ability to apply two pressures, hardware 0 in professibly of the type baring controlled plates 42,44 that may provide both best and child cycles and positionity includes cycle times to regulate cycle than, Care 33 in positional between time and second laminating plates 50, 52, one of which is preferably make facility of two provide laminated cost 33 with the less one included outer surface. Here are second laminating peds 40, 62 are positioned costs and provide costs of the laminating plates 51, 52, and first and provide steel plates 70, 72 are likewise positioned provide of pates 47, 44.

Once book 35 is positioued in Luciscustr 40 as above in PIG. 7, the first lumination cycle is (elifeted by choice benimber phases 42, 44, professibly applying little or no same pressure to bear 25. A luminoster base open is initiated. buinging the temperature of pistons 42,44 up to a mage of 275° P. to 400° P., and coost professibly up to a range of 300° P. to 370° P. for a period of greater than 5 min المد بحد perdurably in the range of 7 to 10 minutes. Once the heat cycle tim been applied to the book 35 as is me forth shows, the year processes of localisator 40 is increased to facilitate the Bow of the plantic core shoots 34, 32 as that the one or more shounds change 20 an encapsulated there by, and so that shouts 30, 32 form a walform core 33 force most clearly in 1908. S-III) with upper and lower surfaces 34,35. As mentiosed, the ray of static finished luminator plates 50,53 provides parfaces 34,35 with a slightly congluent or MXtured making which will inclinate the application of a coming thoses as is discussed below. The rest promote applied during the heat syste and the length of the heat syste may very, depending expensionly upon the size of sheets 30, 32. For example, the cycle time may be in the mage of 10-15 minutes. In this example, a rear products of 940.135 periods per speece facts (p.a.l.) was applied for 10-15 min form a millions ours 33, using shorts 39,33 of a size in the range of 12 inches by 24 inches to 24 inches by 36 inches.

Subsequent to the above heat opein, luminator 40 applies a chill opein to book 36 during which time the rest pressure

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of the laminator Φ is increased, preferably by approxi-mately 25% and the platest 41,64 here control to approxi-metaly 40° P. to 55° R for approximately 10-15 salarity. Core 32 staty than he removed drow insufactor 49 for edditional processing.

Subsequent to the removal of core 33 from languages 40, and as Electrated in FIG. 3, core 33 in content on at least one of it's upper and lower surface 34, 35 with a layer of printing lok 36. This may be accomplished using a wide variety of printing techniques and as offset printing, fewer printing, proper conting, spray printing, the printing, and other suitable printing techniques. As the printing in 1963 is a second printing. shows in PiG. 8, mas 33 is fed in the chrucken sufficient with serow A through a printing press, a filteeprophic printer, or a similar appearant 60. This printing map is performed to 15 cost at laser one method 34, 35 of one 33 with a layer of anthetically plousing ink 36. This layer of link 36 summetimilly hides the one or more electronic elements 20 that are embedded within one 35, and previous sheet one or more clectronic abanessa 20 from showing through the relatively this care 33. In this symmet, the con or more electronic elegands 20 competition in care 33 are completely highing from view without requiring the plants: used in the mean-Europe core 33 to be executively finish.

Referring now to PIGS. 9-10, the final processing of come as 33, which now comprises a layer of his 36 or the like on at hast one surface 34,35 thoract, is solvenideally illustrated. A layer of conductants the mast to clear operations at the M,37 is positioned as at least one left couled surface 34,25 of care 32, and preferably core 33 is positioned between two as similar about of overlanders him 38,39 as shown. Overlanders film is very title, for example in the range of 0.0015° titlet. A book 135 is then constructed for insertion has braineter 🖚 as in schemulically Monarated FIG. 10. Book 135 comprising con 33, including at less one layer of 35 list 34 and at least one layer of overlandings. Elsa 38, 35 in positioned between hardesting plates which are professibly highly policion places such as mirror finished attitudent steel plates 20, 92, Brink 155 also compares that and second beninating pads \$6, \$2 and that and second used places 70, 40 72 as is discussed above in exterior to PIC. 7.

When head 135 is precitioned business appear and lower physics 42,44 of luminator 48 as shown in FIG. 18, the implimiter in closed and a hear cycle in the range of 175° P. 130° S., and make probably in the range of 180° F. to 45 273" P. is applied to book 125 for a period of 10 to 25 enjoyees with 1 may present that warks depending upon short size or the risk size of the legislator 48, but which is typically approximately 1908 p.s.l. with an 18 inch districts tren. The imminuter 40 is then caused to execute a chill cycle, an periorably with a corresponding incurate in 70m promers. For example, the chill important may be to the range of 48° P, to 65° E and last for a period of 10 to 25 minutes. A пав рошет выше об проводеный 25% очет бо регеsure word for the heat eyels but been formal to be most so prokenkia.

Scheenpast to the above described second instinctive ayels as illustrated in PKI. 10, a shoot of plantic card stock in provided which committees at least core 33 with at least one mathem 34,35 shorrof covered by a layer of lak 36, and with # at least one market 34,35 thereof mercad by a layer of overlamicate film 38, 30. Professbly plantic and stock menufactured to reconstance with the present lorenties companies core 33 covered on both suchces 3436 with a layer of jak 36 which is positional between layers of overlandate than 38,39, all of which has been laminated regarder as described. Our or more parts 16 then easy be out

from the retaining physic card stock and card 10 will have a thickness in the range of 0.028 locker to 0.032 inches with variation in overall thickness screen the surfaces 12, 14 thereof being no greater than approximately 0,0005 maters. The one or more cards 10 can thus be said to here a surface approximent of approximently 0.0005 inches or botter. Thus, a cord 10 manufactured in accordance with the person invention includes at least one surface 12,14 at preferably both perfaces 12,14 that, are nefficiently smooth and regular to receive siys aubtimation printing.

Those skilled in the set will recognize that the decepting description has set forth the perferred embediances of the invention in perticular detail and is much be necessarised that properties codifications, substitutions, and changes may be understoon without deposing from the true spirit and scope of the pressua invention as defined by the eneming stains. What is chissed in

- J. A process for incorporating at least one electronic alcounts in the manufacture of a plantic card, comprising the siege of
 - (a) providing first and second plastic core shorts;
 - (b) positioning said at least one electronic alamast in the absence of a man-alactronic carrier directly between said first and sound plantin core shorts to form a soot, maid plantic core abook defining a pair of imper and outer methods of said core;
 - (c) positioning said core in a luminator apparatos, and subjecting said cost to a best and present cycle, seld hant and pressure cycle comprising the steps of
 - (i) bracing said core for a first period of time; (ii) applying a limit pressure to said core for a second period of their mich that said at least own electronic stement is compactated by said core;
 - (B) conting and core while poplying a second presents io said con-
 - (d) coeffing at least one of said outer malayers of said costs with a layer of lafe, and
 - (a) applying a layer of overlandone film to at least one of and, outer perfects of said core.
- 3. The process for incorporating at least one electronic element in the manufacture of a plantic card to recited in chile 1, wherein said familiator apperatus has first and account imminuting ginter, at least one of said first and second imminating phases having a matte finish for creating a texternel markets can all legal cate of said under surfaces of mid
- 3. The process for incorporating at least one electronic element in the members of a plastic and as recited in chain 3, wherein each of mid that and second laurisating places has a matte femily for creating said tentered surface on both of said outer surfaces of said core.
- 4. The process for incorporating at least one electronic element in the manufacture of a pleasin med as recited to chain I, who the mail first and record plants over those are made from a material soluted from the group operating of polyelogi chloride, polyester, and acceptabilis between styrms, such of said shoots having a thickness in the mage of 0.007 to 0.024 inch.
- 5. The presents for incorporating at least one electronic element in the manufacture of a plastic cord as rectted in claim 4, wherein said that and around plantic core shores have a thickness of approximately 0.0125 inch.
- 6. The process his inconstruction at heat and electronic element in the manufacture of a plantic could be recited in chain I, wherein said special pressure is greater than said fini persona.

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7. The process for incorporating at least one electronic channel in the annulacture of a plactic word as at client in claim 6, wherein unit opcord printing is at least approximately 25% greater than said first processes.

8. The process for incorporating at least one absorbool: a clossout is the manufacture of a plastic card as welled in chico 1, wherein said some in based in stop (c)(i) to a summercance in the range of 275° P. to 400° P. and and first period of sizes is at least five (3) extents.

9. The procuse for incorporating at least one electronic to alternoot in the associations of a plantic card as recited in ciaim 1, wherein said liest pressure in approximately 1000 p.s.i., and said accord period of their is at least 18 minutes.

10. The process for incorporating at least one electronic electron in the manufacture of a plastic cued as recited in 15 chain 1, wherein said step (4) is carried out wilking a printing prost.

11. The process for improveming as least one electronic element in the manufacture of a plunic card as method in claim 1, wherein unit step (d) is carried out willings a making technique selected form the group consisting of silk screen printing, offset printing, letterprove printing, screen pointing, roller conting, agency printing, and lifes printing.

12. The process for incorporating at least one electronic chances in the manufacture of a plantic card as sociated in 19 claim 5, wherein each step (c) of applying 2 layer of overlaminets film comprises the farther steps of:

- (a) positioning to overlaminate film on at loud one link carned surface of said core;
- (b) subjecting said core to a reasond base and pressure.
 (i) boulding said core to a temperature between approxi-
 - (f) bouling said ours to a lemporature between approximately 175° P, to 300° F. for approximately 10 to 25 spirator.
 - (ii) applying approximately 1000 p.s.l. patenties to said ³⁰ cost; and
- (III) cooling said case to a temperature in the range of approximately 40° F, to 65° F. for approximately 10 to 25 minutes.
- 13. The process for incorporating at heat one electronic statements in the magnifecture of a please card as sected in

States J., wherein said in least one electronic observe is a micro-chip and an exoculated wire enterms.

14. The process for locorporating at hunt one electronic abuses in the magnifecture of a plantic card as recited in claim 1, wherein said at least one electronic abuses is a giographic and an associated circuit board automat.

- 15. The process for icomparating at least one electronic electronic in the measurement of a plantic cond as received at claim 1, wherein said at least one electronic electronic in a read/write imagentud objected up associated actions.
- 16. A bot institution process for the meanfacture of plantic cards, said process comprising the plant of:
 - (a) providing first and spound plantic core shorts;
 - (b) positioning at least one electronic elected in the phasms of a non-electronic content directly between mid-first end mesond plastic core shoots to form a layered core;
 - (a) positioning said core in a luminosity apparatus, and subjecting unid core to a base and pressure cycle, and hast and prosupe cycle completing the most of:
 - hast and pressure cycle completing the maps of:

 (f) bearing said once in orid legislator, in the pressure
 of a minimal host two pressure, to a temperature
 which courses controlled flow of said plantic which
 makes us said float and amount plantic core shorts;
 - realizes up sold first and amount plantic core shorts;

 (ii) applying a second pressum welforably occurs said core for encountaining said of least one electronic element within said controlled flow plantic;
 - (iii) subsequently expling unit care in conjunction with the expensives application of a third present uniformly autom still core, sold core including and apper and lower surfaces;
 - (d) printing on at least one of said upper and leaved methods of said core such that a layer of left is applied to at least a portion of said at least one upper and leaver method of said otes.
- 17. The method as resided to claim 16 whereis said find, and second cone layou are stored of any appreciable cutcuts.

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EXHIBIT 3

UNITED STATES DISTRICT COURT SOUTHERN DISTRICT OF NEW YORK

LEIGHTON TECHNOLOGIES LLC.

Plaintiff,

-against-

OBERTHUR CARD SYSTEMS, S.A. AND OBERTHUR CARD SYSTEMS OF AMERICA CORPORATION.

Defendants.

Case No. 04-CY-02496 (CM)(LMS)

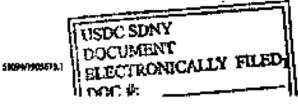


STIPULATION AND PROPOSED ORDER

In an effort to streamline the issues in the case, the parties to this action, Plaintiff Leighton Technologies, Inc. ("Leighton") and Defendants Oberthur Card Systems, S.A. and Oberthur Card. Systems of America Corporation (collectively "Oberthar"), have met and conferred regarding (1) the current claims and defenses set forth in the pleadings; and (2) the products accused of infringement. The specific terms of the parties' agreement are set forth below.

In view of this Stipulation, and subject to approval by the Court, the parties have agreed to file amended pleadings which reflect the claims, counterclaims and defenses which are being dismissed or emended. The emended pleadings are attached to this Stipulation and Proposed Order.

Oberthur has represented that to date, it has made, used or sold less than 5,000 "dual mode cards" in the United States, and have not made or sold any "bybrid cards" other than the sale to Sun-Microsystems Oberthur already identified to Leighton during discovery. Dual mode cards are cards that have a single chip and both contact and contactless interfaces. Hybrid cards are cards that have two chips, one with a contact interface and the other with a contactless interface.



Obserting has also represented that it will promptly notify Leighton if at any time prior to the conclusion of trial it makes, uses or sells more than 20,000 duel mode cards or hybrid cards to or on behalf of my customer, including the U.S. government (Oberthur does not in any way concede, however, that U.S. government sales full within the scope of this case). The potice requirement will be triggered by Oberthur initiating the manufacture of cards to fill on order for more than 20,000 cards. Leighton has reserved its right to assert the '367 and '099 patents in the event that occurs.

- As a regult of these representations, Leighton has decided to dismiss, without l. prejudice, all causes of action relating to two of the patents in suit, U.S. Patent Nos. 6,514,367 and 6,036,099 (***367 and '099 patents"), with each party to bear its own costs and fees relating to those causes of action, and to file a Third Amended Complaint. Oberthur does not oppose this dismissal.
-][. With respect to certain affirmative defenses and counterclaims set forth in Oberthur's Answer to Leighton's Second Amended Complaint, Oberthur wishes to amend its pleadings as follows, and Leighton while reserving its rights to challenge the merits of the pleadings, does not oppose the amendment that:
 - The Second and Third affirmative defenses of Oberthur are hereby dismissed a) without prejudice, with each party to bear its own costs and fees relating to those affirmative defenses;
 - The Fifth, Sixth, Seventh, Eighth and Ninth counterclaims of Oberthur for Tortious Ы) Interference with Prospective Economic Advantage, Attempted Monopolization, and Restraint of Trade are hereby dismissed without prejudice, with each party to bear its own costs and fees relating to those counterclaims;

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- c) The Pirst and Second counterclaims for inequitable conduct in the prosecution of the '367 patent and U.S. Patent No. 6,214,155 shall proceed against Leighton (and are not being asserted against former Counterclaim Defendant Knith Leighton in his individual capacity);
- ፊ) The Third counterclaim for a declaratory judgment of invalidity and noninfringement is bereby dismissed without projudice as to Counterplaim Defendants Alexander Polymak, Paul J. Lerner and Keith Leighton, with Oberthur and each of these Defendants to bear their own costs and fees relating to those counterclaims. The Third counterclaim shall proceed against the non-individual defendants, Defendant Leighton and Counterclaim Defendants General Patent Corporation International, General Patent Corporation, IP Holdings LLC (this stipulation will not be used as a basis for the former individual defendants, Poltomk, Lerner and Leighton, to object to providing discovery in this case);
- The Fourth counterclaim for patent misuse shall proceed against the non-individual e) defendants, Defendant Leighton and Counterclaim Defendants General Patent Corporation International, General Patent Corporation, IP Holdings LLC;
- Ш, During any trial of this action, the parties will not discuss, argue or otherwise referto the causes of action, counterdaims and affirmative defenses dismissed by this stipulation (this does not preclade either party from referring to the dismissed patents during trial to the extent they relate to issues in the case); and
- The amended pleadings, including: the Third Amended Complaint; the Answer and IV. Connercialms to that Complaint; and the Answer to the Counterclaims are attached hereto

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as exhibits, and will be filed in the same form upon approval of this Stipulation and Proposed Order by the Court.

STIPULATED AND AGREED TO BY:

Dated: July20, 2006

LEIGHTON TECHNOLOGIES LLC, GENERAL PATENT CORPORATION INTERNATIONAL, GENERAL PATENT CORPORATION, IP HOLDINGS LLC, ALEXANDER I. POLTORAK, PAUL J. LERNER AND KRITH LEIGHTON

By their attorneys:

Sutherland Asbill & Brennan, LLP 1275 Permsylvania Avenue, N.W. Washington, DC 20004-2415

Tel.: 202-383-0100 Fax: 202-637-3593

Robert A. Gutkin, Esq. (Pro base vice) Blair M. Jacobs, Esq. (Pro hac vice) Christina A. Oadrick, Esq. (Pro hac vice)

Dated: July 74/2006

OBERTHUR CARD SYSTEMS, S.A. and OBERTHUR CARD SYSTEMS OF AMERICA CORPORATION

By their attorneys

Quitin Emanuel Viquhari

Oliver & Hedges LLP

51 Medison Ayones, 22nd Floor New York, New York 10010

Tel.; 212-849-7000 Fax: 212-849-7100

Edward DeFranco (ED-6524) Kevin Johnson (KJ-8689) Robert Juman (RJ-6350)

PURBUANTATO STIPULATION, IT IS SO ORDERED.

Hon. Lisa Margaret Santit

United States Magnethur Judge

EXHIBIT 4

Westlaw

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(Cite as: 358 F.Sopp.2d 361)

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BrioD and Other Related Documents

Leighton Technologies LLC v. Oberther Card Systems, B.A.S.D.N.Y., 2005.

United States District Court, S.D. New York.
LEIGHTON VECHNOLOGIES LLC, PlaintiffCounterclaim Defendant.

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OBBRITHUR CARD SYSTEMS, S.A., Defendant-Countriolatio Plaintiff. No. 94 CIV, 2496(CM).

Marck 9, 2005.

Background: Suit was brought offeging infringement of potents describing a bot lumination process for transfecturing a "contactions amont card" with an embodded electronic element and an aesthedealty pleasing, amonth finished surface that was capable of receiving dye sublimation printing. Defendant dealed infringement and contasted the validity of the putents.

Holdings: In constraint disputed claim terms, the District Court, McMatton, J., held that:

- (1) phrase "electronic element," was not susceptible to narrow construction which limited the term to a combination of a microchip and an automat, and
- (2) terms "first," "record" and "third," as used in potent claims referred to the sequential order in which the steps were to be performed.

Claims construed.
West Headpoles
[1] Patents 291 ©=314(5)

291 Patouts

251XII Infringement 291XII(C) Soits in Equity 2913314 Hearing

2912314(5) k. Questions of Law or Fact.

Most Cited Cases

Patent claim construction presents a quantion of lawfor a judge, not one of fact for a jury.

<u>121</u> Patreto 291 €⇒101(11)

291 Patents

29)[Y Applications and Proceedings Thereon 29:1k10] Claims

291k101(11) k. Process or Method Claims.

Most Cited Cases

For process or method cleams, patent claim interpretation may involve accertaining whether the claim may be interpreted to require that the steps be performed in a specific order, test for determining whether the steps is alleded in a process claim must be performed in the meited order require court to book to the claim tanguage to determine if, as a matter of ingle or grammar, they must be performed in the order written, and, if not, court cant tooks to the rest of the specification to determine whether it directly or implicitly exquires such a merow construction.

[3] Palests 291 €==165(5)

201 Patenta

2917X Commocition and Operation of Letters Pal-

2911X(B) Limitation of Claims

291k165 Operation and Effect of Claims in

General

291k165(5) k. Construction of Perticular Chrima as Affected by Other Claims, <u>Most Cited</u> Cause

Ordinarily, terms are to be construed so that they have the same meaning throughout a patent.

(4) Patenta 291 €->157(2)

291 Patouts

2911X Construction and Operation of Letters Pal-

291[X(A) in General

2916-157 General Rules of Construction 2916-157(2) k. Construction to Oive

Validity and Biffect to Patent. Most Cited Cases.

Courts are to construe claims so as to matrix a patents validity where possible.

<u>|5|</u> Patents 291 €=101(3)

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(Cite as: 358 F.Supp.2d 361)

Page 2

291 Patents

2911V Applications and Proceedings Thereon 291k101 Chims

291k101631 k. Limitations in General. Most Cited Cases

Phrase "electronic element," as used in patents descalibles a hot harmonical process for manufacturing a "contactless somet cord" with an embedded electronic element, could not be construed with reference solely to intrinsic evidence without defining additional leans "services ductor," "conductor," "inculsior," and "electrical," phrase "electronic element" was not susceptible to marrow construction which limited the term to a combination of a microchip and an antenna.

图 Peterb 291 €⇒165(の)

29[Palents

2910X Construction and Operation of Letters Patent

2916X(B) Libritation of Claims.

291k165 Operation and Effect of Claims in General

2916165(4) k. Reading Limitations or Elements Into Cisiosa, or Disregarding Limitations or Elements, Most Cited Comp.

A patent is not limited to its disclosed embodiments.

[7] Patents 391 €xxx101(2)

291 Patembs

2911V Applications and Proceedings Thereon 2916101 Christs

291k101(2) k. Construction in General.

Most Cised Cases

Phrase "non-electronic carrier," as used in patents deteribing a hot lamination process for manufacturing a "contactless amort card" with an embedded electronic element, masset a holder need for electronic devices to protect them from physical damage, which device was not part of a circuit that atilized a semiconductor davice.

<u>(6)</u> Patents 291 €⇒(H(Z)

291 Palenta

2911V Applications and Proceedings Thereon. 291k101 Claims

2911:101(2) k. Contraction in General.

Most Cited Cutes

Term "directly," as used in patents describing a hot lamination process for manufacturing a "contactless smert card" with an embedded electronic element, recast "in immediate physical contact" in context of claim language "positioning said at least one electronic element in the absence of a non-electronic carrier directly between said first and around plastic contacts."

(2) Patruto 291 C-- (41(2)

291 Patents

2911V Applications and Proceedings Thereon 2911:101 Claims

291k(0(f2) k. Construction in Outeral.

Most Cited Cases

Phrase "oncaprulated by," as used in patents describing a bot lamination process for measufacturing a "contaction smart curd" with an embedded electronic element, meant "melmed by," and phrase "encapsulating" meant "enclosing,"

[56] Patrots 291 €==191(2)

291 Petrols

2911V Applications and Proceedings Thereon 291k101 Claims

291k101(2) k. Construction in General.

Most Cited Cases

In the context of language "conting at least one of said outer surfaces of said core with a layer of ink," as used in patents describing a hot furnisation process for manufacturing a "contactions smart cost" with an embedded electronic element, term "conting" meant "covering."

[[1]] Patheta 291 €=>101(2)

291 Petcets

2911Y Applications and Proceedings Thereon 291k101 Claims

291k101(2) k. Construction in General.

Most Cited Cases

In the context of language "minimal first new pressure," as used in patents describing a hot lamination process for monufacturing a "contactions count card" with an embedded electronic closest, word "minimal" mount the smallest or least amount of new Case 1:04-cv-02496-CM

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358 P.Svpp.2d 361 (Cits eat 356 P.Sepp.14 361)

pressure necessary to accomplish the designated stop.

<u>|||21|</u> Pulosta 191 €=>||01(2)|

291 Patenta

2911V Applications and Proceedings Thereon 291k101 Claims

291k181(2) k. Communion in Central.

Most Cited Cases

Tomes "first," "nocoud" and "third," as used in patent citizes referred to the sequential order in which the steps were to be performed in a hot lumination process for mamufacturing a "contactiese amort sand" with an embedded electronic element.

1131 Patenta 291 (222-145(3)

291 Patenta

2910X Combustion and Operation of Letters Pateut.

291 IX/B) Limitation of China

29]1:161 Operation and Biffest of Claims in

Gosard

29 k 165(3) k. Construction of Language of Claims in General, Most Clied Coacs

Patente 291 €==167(1)

29J Pelceta

2911X Construction and Operation of Letters Pal-

2911X(B) Limitation of Claims

291k167 Specifications, Drawings, and

Modela

291kJ67(1) k. In General, Most Cited

CHM

Palesta 291 C=168(2.1)

291 Paldots

2911X Construction and Operation of Latters Pat-

29 IFX(B) Limitation of Claims

<u>29 ik 168</u> Proceedings to Patent Office in

Cioneral

291k168(2) Rejection and Amendment

of Claims

291k168(2.1) k. la Ossonil. Most

Cital Cases

Where the isaguage of the cisits, the specification, and the prosecution history logically indicate a soquential process, recited steps in a claim must be read to require a sequential order.

1141 Fatents 271 Cov181(6)

291 Patenta

2911Y Applications and Proceedings Thereon 29 | k | 01 Claims

291k101(6) k. Ambiguity, Uncertainty or

Indefiniteness, Most Cited Cases

Courts interpreting patents routinely avoid indefinitemess by interpreting language to provide for an auteecdent besit:

[15] Patenta 291 €=>101(2)

291 Palcola

2911V Applications and Proceedings Thereon. 291ki0! Claims

291k101/2) k. Countraction in General.

Most Cited Cases

Planer "controlled flow," as used in putsets describing a hot lamination process for manufacturing a "consections smart card" with an embedded electronic clement, meant regulated and threated forward coa-Manages and versions.

[[6] Patenta 291 Caro 101(2)

291 Patenta

291IV Applications and Proceedings Thereon. 29 lki 01 Chainea

291k101(2) k. Construction in General.

Most Clard Cases

Phrase "cooking said core while applying a second pressure," as used in patents destribing a hol lamination process for manufacturing a "contactions must courd" with an embedded electronic element, meant cooling and core during the time that a second prossure is applied.

<u>[17]</u> Pales#4 391 €==101(2)

291 Palents

291EV Applications and Proceedings Thereco. 291k(D) Chium 291k101(2) k. Construction in General. 358 F.Sapp.2d J61 358 P.Sapp.2d 361 (Cite at: 358 P.Supp.24 361)

Most Cited Cases

Phrase "cooking said core in conjunction with the concurrent application of a third pressure," as used in puterts describing a bot lumination process for manufacturing a "contactious amont cord" with an embedded electronic element, recent "cooling taid core while at the same time applying a third pressure."

<u>| | 181 Protente 291 €==101(2)</u>

291 Putcuts

2911V Applications and Proceedings Thereon 291k101 Christa

291k101(2) k. Construction in General. Most Cited Cases

Phrase "plantic core aborte," as used in potents describing a hot lamination process for manufacturing a "contaction must card" with an embedded electronic clonest, meant sheets of plastic between which the electronic element is positioned.

<u>| [19]</u> Futentz 291 €==101(2)

29 | Patents

2911V Applications and Proceedings Thereon 291k101 Claims

29 (k 101/2) k. Construction in General. Most Cited Cases

Phrase "laminator apparatos," as med in patents deexcitains a hot lare insulan process for manufacturing a "contactions senset cond" with an embedded electronic element, mesut equipment that is used to unite two or more layers of material, such as the core, by the application of heat and presence.

(20) Patente 291 Coo 101(2)

291 Petenta

2911Y Applications and Proceedings Thereon. 29 lk101 Claims

291k101(2) k. Construction in General.

Tom "milling," as med in patents describing a hot. Iteriation process for manufacturing a "contactless smart card with an embedded alsockonic element, ateast using a panchine to remove.

Patento 291 (200328(2))

29 | Patents

291XIII Decisions on the Validity, Construction. and Initingement of Particular Pateurs

2911328 Patenta Emanerated

291k328(2) k. Original Utility, Most Cited

Canca

4.450.024, 5.519.201. Cited as Prior Art.

Patenta 291 €==326(2)

291 Patents

291XIII Decisions on the Validity, Construction, and Infringement of Particular Patents

29 ik328 Patenta Esperarated

293k328(2) k. Original Utility, Most Clied.

Cases

5.817.207, 6.036.099, 6.214.155, 6.514.367, Comstruct.

*363 Blair M. Jecobe, Robert A. Gutkin, Sotherland, Achill & Bronson, L.L.P., Washington, DC, Joseph <u>Plaziani.</u> Patriot: L. Parter, Valeria Catalioro, Petrick Lee Parker, Clifford Chance US LLP, New York, NY, for Plaintiff.

Prenk Michael Casparo, Baker & McKeazie (NY), New York, NY, for Defendant/Claiment.

James David Jacobs, Boker and McKenzie, New York, NY, for Claimant.

*364 DECISSON CONSTRUING DISPUTED CLAIM TERMS(Markman Decision) MCMAHON, District Judge. This is a patent infringement case.

Plaintiff, Laighinn Technologiet LLC ("Leighton"), owns U.S. Patent Not. 5.817.207, 6.036.099. 6.214.155 and 6.514.362 (collectively, the "Patents" or "patents in enit"). All four Patents exists to millofrequency identification ("RFID") technology, which is the basis for the po-called "mount card," a plantic oard that includes an electronic element (such as a computer chip) and a reader, and that is used in numercus common applications including accurity swipe cards, credit/dehit cards, mass trapeit access, tell collection (BZ-Past), and government identification. (Plaintiff's Brief in Support of its Claim Construction, detect Nov. 5, 2004 ("Pl. Br.") at up. 1. **34**)

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Page 5

Smart cards come in three forms. As the same suggests, a "contactions" ameni card transmits a signal. when it is placed near the reading device, even if the card is contained in a purso or wallet. A "contact" stanct cord requires contact between a magnetic atrip on the eard and the reading device. A "dual function" outd works with or without contact. (See Defendant Oberthur Card Systems, S.A. Markman Brief, detect Nov. 5, 2004 ("Def. Br.") at p. 3.) Contactions and dust function smart cards all contain a computer chip and antenna, one or both of which are encapsulated between plastic sheem. (See, e.g., '207 patent: '099 gatest.) In addition to an embedded electronic elemeet, dual function cards also have an exposed electronic surface to facilitate contact transmission. (See, v.g., 1999 poteni: 367 pateni.)

The Percets describe processes for making apart cards. Specifically, they claim the use of a "highly coordinated" lumination process involving best, coofing and the application of pressure to encapsulate an electronic component that is essential to signal warerelation between two plastic shoots to form contactitse und dual function separt cards. (Pl. Br. et l., 4.) The Patenta allegedly improve over prior entity eliminating the need to create a protective barrier around the embedded electronic claracit, thorsby uncomplicating the reseafacturing process. Plaintiff's process also produces a card with a surface smooth enough to retrive dye sublimation printing. (See, a.g., '207 petget, Abstract, Def. Br. at 5-6 (citing the 60,005,685) provisional application that matured into the 207 natent): Ft. Br. at 1, 9.)

Defendent Oberthur Card Systems, S.A. ("Oberthur") also manufactures are not reach. Plaintiff alleges that Befordent and its subsidiaries knew about said infilinged the Patents in Oberthur's manufacturing practices. (Fi. Br. at 1.) Defendant deales infriegement and contests the validity of Plaintiff's Patents, noting that "chip" cards, including contactions and dual function entert cards, have been manufactured using lumination techniques for years prior to the Patents, and that implication has long been a well-known procedure for bonding ourd layers using least and pressure. (Def. Br. at 4.)

[13] Before reaching the issues of validity and in-

fringement, this Court must countrie the claims. This function has resided with the Court since the Federal Circuit decided, in <u>Advisors v. Nustview function</u> menus. Inc., 52 F.1d 967, 978-79 (Fed.Cir. 1995), off d \$17 U.S. 370, [15 R.Ct. 1384, 134 L. Ed.2d 577 (1996), that claim construction presented a question of law for a judge, not one of fact for a judge,

Leighton has identified 36 claims in the Patents requiring constructions claims 1, 6, 7, 8, 11, 14-16 of the '207 patent: claims 1, 6, 7, 8, 12-15 of the '155 patent; claims 1, 6, 7, 9, 12, 14-16 of the 999 patent; and claims 1, 6, 9, 12, 15-17, 19-23 of the '367 *365. patent. (PL Br. at 13). The parties agree on the meaning of most of the terms used in the Putcula. The fourteen disputed terms in these claims requiring construction are: (1) "electronic element" (Dof. Br. et 2; Pl. Br. et 13); (2) "son-electronic carrier" (Def. Br. at 2; PL Br. at 13); (3) "directly" (Def. Br. at 2; Pl. Br. at 13); (4) "comprising the steps of" (Def. Br. at 2); (5) "encapsulated by/encapsulating" (Def. Br. at 2); (6) "costing at least one of and opter surfaces of said core with a layer of lok" (Def. Br. at 2; Pl. Br. at 13); (7) "minimal first ram pressure" (Def. Br. at 2); (8) "titat processe, second presence, third procesure" (Def., Br. at 2); (9) "controlled flow" (Def. Br. at 2); (10) "cooling said core while applying a second pressure". (Def. By. et 2); (11) "cooling said core in conjunction with the concurrent application of a third pressure". (Def. Br. at 2); (12) "plastic core sheers" (FL Br. at 13); (13) "laminator apparatus" (Pl. Br. at 13); and (14) "milling" (Pt. Sr. at 13).

Principles of Claim Construction

Certain principles deeply embedded in patent law guide the court in claim construction.

The meaning of a claim should be interpreted, if at all possible, in light of the intrinsic evidence: the claim language little, the specification contained in the patent and the patent's prosecution history. <u>Mariaton. 52</u>
F.3d at 979. The intrinsic evidence constitutes the public record of the patent on which the public is emtitled to rely. <u>Id.</u> If the intrinsic evidence is sufficient to resolve the meaning of a disputed term, it is improper to resent to extrinsic evidence, such as expert testimony or treatises, in constructing claim in-

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gasge, Virturies Corp. v. Conceptionic Inc., 90 F.3d 1576, 1583 (Fed.Cir.1996). Only if intrinsic evidence is insufficient to resolve as suntigetly in a disputed claim texts may a court resort to extrinsic evidence. CVI/Beta Ventures, Inc. v. Tura, I.P., 112 F.3d 1146, 1153 (Fed.Cir.1997).

To define the scope of the patented invention, the Court must look first at the words of the claims themsolves. Vibranies Corn., 90 F.3d at 1582 (citing Ball) Communications Research, Inc. v. Vitalink Commu-Monthuse Corp., 55 F.3d 615, 620 (Fed.Cir.1995)). Words in the claim are generally given their ordinary. and conferency meaning as understood by someone. akilled in the est. However, "a patentee may choose to be his own lexicographer" and assign special definitions to the words in the claim, as long as those definitions are clearly stated in the potent apacificstion or file history. Id. (citing Hoccies Colonese Corp. v. BP Chara. Ltd., 78, F.3d, 1375, 1578. (Ped.Cir. 1996)). Therefore, "it is always accessary to review the specification to determine whether the inventor has used any terms in a manner incommistent with their ordinary metaing. The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." Id. (eiting Markeon 52 F.14 at 979). The Pederal Circuit has stated that "claims most be read in view of the specification, of which they are a part." Id. (citing Marketon, 52 F.3d at 979); see also Gart v. Lonizach, Inc., 254 F.3d 1334, 1341 (Fed.Cir.2001) ("It is certainly correct that the specification and the prosecution bistory should be consulted to constructhe language of the claims."). Because the specification must contain a description sufficient to enable those of ordinary skill in the set to enable and use the invention, the specification "is the single best suide to the meaning of a disputed term." Physosics, 90 P.3d at 1582.

The Court also may consider the prosecution bistory of the patent. Id. (citing Markman, 32 F.3d at 980: *366(Insham v. John Deere, 383 U.S. 1, 33, 86 S.C.), 684, 15 L. Ed.2d 545 (1966)). The prosecution history is the complete second of the proceedings before the Patent and Trademont Office. During the course of these proceedings, the applicant may have made express representations regarding the coope of the in-

vention, so the prosecution history is "often of critical significance to determining the meaning of the claims." [d] (niting Martman, 52 F.3d at 980; Southwall Tech. her. v. Cardinal IG Co., 54 F.3d 1570. 1576 (Fe4.Cir.1995)). Claim terms may appear to contain picia language, but the prosecution history may demonstrate that the claims do not cover some matters that would otherwise be encompassed in the plain meaning of the words used. Prosecution historics often contain an applysis of the distinctions between the prior art and the applicants claims, providing the Court with aloes to limitations of the chains. Id. at 1573: Auspoiro Co. of America v. United States, 181 Ct.Cl. 55, 384 F.2d 391, 399 (1967). Furthermore, "the prospection Matory Resits the interpretation of claim terms so at to exclude any interpretation that was disclaimed during prosecution." Southwall Tech. Inc., 54 F.Jd at 1576. Even when the written description would otherwise support a construction, the prosecution history, which is generated afterwards, can reliminate coverage of a claimed embodiment. Rheos, Inc. v. Ember 276 F.3d 1319.1325-27 (Fed.Cir.2002).

[2] For process or method chains like the ones at inrue here, claim interpretation may involve ascertaioing whether the claim may be interpreted to require
that the steps be perferred in a specific order. <u>Interaction Gift Express. Inc., y. Compreserve Inc.</u> 256
F.3d 1321, 1342 (Figl.Clc.2001). The Federal Circuit
research crafted a two-part test, both prougs of which
involve only intrinsic evidence, to describe whether
the steps included in a process claim ratest be performed in the resided order:

First, we look to the chrim language to determine if, as a matter of logic or grammer, they must be performed in the order wellton ... If not, we next look to the rest of the specification to determine whether it "directly or implicitly requires such a necrow construction."

Altiric inc. v. Summire Corp. 318 F.34 1363, 1369-76 (Fed. Cir. 2003) (Internal clutters contited).

[316] Ordinarity, terms are to be construed so that they have the same mouning throughout a patent. Southwell Technologies, Inc. v. Cordinal IO Co. 54
F.3d 1570, 1574 (Fed.Clr.1995), Pinally, claim (m-

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gauge should be mad in a manuer that causes the claim to make sense; courts are to construc claims as as to causain a patent's validity where possible. <u>ACS Hosp. Syr. Inc. v. Manteflore Hosp.</u>, 732 F.2d 1572, 1577 (Ped.Cir.1964).

Background of the Patents At Issue

In this case, there are four patents in suit.

The '207 natural describes a hot lamination process for menufacturing a "contactless speet card" with an embadded electronic element and an neatherically ploasing, smooth finished surface that is expeble of receiving dye sphilimation printing. See, e.g., 207 petent. Abstract, Ex. 1 to Declaration of James David Jacobs, dated Nov. 5, 2004 ("Jacoba Deel."). Noting increated credit card and ATM fraud, the Background of the Investion for the 207 maters elaborates that this particular type of amost card-with its embedded computer obly that is capable of storing information about the holder-is intended to full "a need in the plantic card industry to provide a more secure plantic cand that is very difficult or impossible to fruidsleathy manipulate," '207 cates), oof, 1:52-54. To that end, the *367 embedded electronic element "may perform a wide variety of functions and take a wide variety of forms * '207 patent. Detailed Description. of the Invention, and, 3:35-37. In addition, the process described in the '207 nature (which yields a cord that complies with all industry standards and specificathous) is not as expensive or difficult as offer most card processes, and produces a more sestbelically pictoring card than prior putrated processes i.e., a thianer, smoother card that con receive dye sublimation and so does not reveal its embedded computer chip. <u>207 extent.</u> col. 1:58-col. 2:13.

Claim 1 of the 207 patent (an independent claim) is representative of the context of most of the disputed terms at issue in this soit (bolded):

FN1. The parties do not clie to the same unctions of the Palents for the content of the disputed terms, however switter party appears to content the content rolled upon by the other. Finistic, for example, cites to the 207 and 200 palents in the beginning of its brief, and indicates that the context is representative of the "155 and "367 asiests, respectively. (See, e.g., Pl. Br. at 4, it. 4.) This would appear to be occurate; as discussed below. (he Petents are all continuations or continuations-in-part of the "207, paters." Therefore, for purposes of this *Marinare* decision, I will refer to the Patents where possible, and to the briefs where accessive to avoid confusion.

A process for incorporating at four one electronic elegatest in the manufacture of a plastic card, comprinting the steps of: (a) providing first and second plantic core alweig (b) positioning said at least one electronic element in the absorce of a nearelectronic carrier directly between said first and second plastic core alcets to form a core, said placific care about defining a pair of inner and outer surfaces of said core; (c) positioning said cose in a lateinates approvates, and subjecting said core to a best and processe cycle, said host and pressure cycle comprising the steps of: (i) beating said core for a first period of time; (ii) applying a first pressure to said core for a second period of time such that said at least one electronic element is encapeulated by midcore; (iii) cooling said care while applying a second pressure to said core; (d) conting at least one of raid switt speciesse of unit core with a layer of inic; and (c) applying a layer of overlaminate film to at least one of said outer surfaces of said core.

207 patent, col. 6:35-40. (See also Declaration of Neil G. Cohen in Support of Phintiff's Brief in Support of its Claim Construction ("Cohen Decl."), Vol. 2 at L2-4.)

Claims 16 of the '202 patent (else an independent claim) includes in the first chronological step of the best and pressure cycle the following additional instruction, which incorporates additional disputed terms:

(i) beating said core in a landmator, in the presence of a stimbural first runs pressure, to a temperature which causes candrelied flow of said plantic which makes up said first and second plantic cure shorts; (ii) applying a second pressure uniformly across said core for encapeutating said at least one electronic element within said controlled flow plantic; (iii) sub-

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requestly exciting said core in conjunction with the concurrent application of a third pressure uniformly across said core.

207 materit, col.8: 12-32.

In plain English, the 207 patent teaches that an elec-Fonic element is positioned between plassic about to form a "core." The specification acknowledges that these "electronic elements ... and their intertien into plastic cards is not new, however, the present invention provides a new hot *368 lamination process for mateuriscuring plantic cards ... with these electronic elements." 207 paises, col. 3:53-67. (See also Pl. Br. at 4.) Specific disclosed examples of the electronic element include microchips connected to various types of antennas and "any other suitable electronic element. 1. 207 patent, col. 3;48-52. During oral argument at the Markings bearing, the court likewed this "cose" to a sandwith, in which the plastic shoots were the pieces of bread and the electronic pleasant was the filling.

Once created, the plastic core "pandwich" is then placed in a landinator between under and lower "platens," owe of whith is moreble. The laminator bests, cools and applies hydraulic pressure to the core. via intermediate layers consisting of "leminating pada" and "steel plates," id. m col. 4:22-40. (See also Pl. Br. of 5.) The core and the intermediate layers form a "book, <u>7,1207 patent</u>, col., 4,33,40,

A first immination syste is initiated by closing the huminator platene and applying little or no pressure to the book. 207 octout, col. 4:41-44. A fest cycle (s initiated to bring the temperature of the pistons up for a predetermined period of time (e.g., 275-400° F for raore than 5 minutes). 227 paices, col. 4:44-48. (See ative PA. Br. at 5.) The pressure of the leminator is then increased to facilitate the flow of the plastic core shoets to consecutate the electronic element within the sheets, '287 paignt col. 4:48-54. (See also Pl. Br. at 5.) The presence cannot be too great or it will damage the electronic element.

The luminator then applies a chill cycle to the book in which the pressure of the languager is increased until the platear have cooled to a prodotermined temporature for a predotermined period of time (e.g., approximately 40-65° F for approximately 10-15 paintes). 207 patent, col. 4:66-5:5. (See ptipe PL Br. at 5-6.)

The core is thee removed from the laseinstor, Whereupon it may be contail on at least one of its outer surfaces with a layer of ink. 207 patent, col. 5:6-17. A clear layer of overlaminate film may be applied to the ink-coated core. ht. at col. 5:25-31. Individual cards may be out out from the luminated core. 14 4 col 5:67-6:4.

The 355 patent application was filed approximately two years after the '207 application, (See Del. Br. at 10.) The '155 cateo) application is a continuation of the 207 outers application and duplicates in all substantive respects the 207 patent specification (14) The similarities between the 155 and 207 patents are subdantial. Looking Just at the independent claims: chaire I of each is identical, except that claim I of the "155 patent dmits the ink-cessing step; and chim 15 of the '155 patent is the same as claim 16 of the '207. patent, except that claim 15 of the '155 omits the printing step. The lamination process claimed in the 207 and <u>1155 nateuts,</u> including the serial steps of hosting, cooling and applying pressure, is identical.

Leighton filed the application that restured into the 999 extent seprentimetaly 10 months after filing the application that matured into the 207 petent. The 1099 natest is a continuation-in-part of the 207 patent syptication. (<u>(d. st.3.)</u> Whereas <u>the '207 cetent</u> is directed to the bot largination process for creating a contecfices count, the 1999 patery is directed to a dual function card-a combinating contact/contact/ess card. (1d) Despite the fact that the patents relate to differcut types of cards, the specifications of the '207 and 1999 natents there virtually the same discloques. There is, however, an additional step levelved in ereating the dual function card, which includes the last group of additional terms: "milling a region of said. core to a controlled depth as as to force a cavity which exposes at least #369 one contact pad of said stactronic element," and "inserting a account electrunic element into said cavity, the second electronis element being in electrical communication with the at itset one electronic element," 1999 maters, pol.

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9:3-5, cal. 10:17-19; ser abo <u>'367 potent,</u> chime 1, 22, 23.

This additional step allows for placement of a second electronic element into the cavity to facilitate the contact function of a dual function start.

Leighton filed the application that numbed into the 367 patent approximately three years after the 207 application, and approximately two years after filing the application, and approximately two years after filing the application, and approximately two years after filing the application for the 109 patent application is a continuation of the 1099 patent and, except with respect to matters not relevant here, the specifications are identical. (64) It is also a continuation-in-part of the 207 patent. The 367 patent, like the 1099 patent, describes a hot lumination process for occasing a dual function contact? contactless seneric card, and so if contains the "milling" step and insertion of a second electronic alement as in the 1099 patent.

The main difference between the contactions card process (the '297 and '155 subsets) and the dual function out process (the '999 and '176 patents) appears to be that one or more electronic elements are embedded during lamination in the plantic core sheets in the process described by the former patents, whereas in the latter patents, in addition to that ambedding, another electronic element is inserted into a millest ouvity after lamination to allow the card to function in either a contact or contactions mode. (See, a.g., ?!, Br. at 10, describing Figures 1 and 2 of the '999 patent.)

Significantly, there is nothing-no container, no reconstand no physical buffer of any sort-that protects the embedded efectionic element during landmation in any of the Patents at tame here-whether a micro-chip and antenna, or just an auteons. Sex, e.g., 727 paints, col. 6:23-25. Both parties acknowledge that the absence of a "buffer" or "buffer nous" is the critical improvement of these patents over arter ort, specifically over U.S. Patent No. 4:450.024, which required protection for the electronic element during landmatica, Sec, e.g., 1024 patent, col. 6:60-7:8.

indeed, the Patent Office initially rejected application Children 1-19 of the 207 potent as being obvious over the 3024 patent. (Pt. Sr. at 19.) Claim 1 of the 207.

nations originally recited:

 A bot lamination process for the manufacture of a phastic card, said process comprising the risps of? (a) providing first and account plantic core theory; (b) positioning at least one effectively element between said first and second plantic core abouts to form a layered core.

[14] In response to the Petent Office's rejection, the bolded language was modified to read, "electronic channel in the chance of a new-electronic carrier directly between suit first and record pinetly care shorts..." (M. (emphasis added).) This modified langauge appears in each of the four Petenia, to reliect this same suprovement, in distinguishing the 207. milent from the '024 patent, Leighton noted that the '024 patent required that the "electronic element ... be placed in a protective certier disk," which protection is not necessary in the '207 eatent (or any of the Petcosts at issue in this case). (Pt. Br. at 20.) Thus, Leighton's modification of the language indicated that the '207 cereal-and the rest of the Patenta-improved on the 1024 nation; by chiminating the need to specifically protect the electronic element during fantiutifion.

Construction of the Disputed Terms

With one key exception, Obertinit and Leighton agree that all the terms should "370 be defined in the same way series all from scheed Patasts. Oberthar believes that the term "electronic element" cannot be defined in the same manner for the "367 and "369 patasts as it is for the "207 and "155 patents and, indeed, arguer that it conset be defined at all for the former patents. I disagree.

1. "Riccircuite Klouwer?"

[5] This term will be defined as "a device or thing that has (1) distinct characteristics related to electricity; together with (2) terminals at which it easy be connected to other distinctly electrical devices or things in order to form a circuit (3) in which electrons move through devices called semiconductors."

The phrase "electronic element" appears in claim 1 of each of the four Patenat. "A process for incorporating at least one electronic element in the manufacture of

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a platable card - positioning said at least one elecfronte element in the absence of a non-electronic carrier directly between said first and second plantic Claim 1; 1155 Patent, Claim 1; 1299 Patent, Claim 1; 367 Petent, Claim 1; 367 Patent, Claim 20, (See olso Cohen Deel., Ruh, (,.)

If also appears in the following language of the '207. and 155 potents: "[P]outlooing at least one electron-It decreas in the absence of a non-electronic carrier directly between said first and second plantic core sheets. " 207 Pasent claim 16 and "155 Patent Claire 15. (See also Cohon Decl., Esh, L.) "Electronte element may take a wide variety of forms and perform a wide variety of functions. As shown ... clostreats element may be provided by a micro-obje and a circuit board antenna, a read/write micro-chip and a wire coil antenna, or any other suitable electronic element." 207 Patent Specification, col. 3:46-52 (internal influences confiled).

The specification of the '099 catent states that the "electronic element may rake a wide variety of forms (microprocessor of p, circuit bound, transposder, etc.)." (Pl. Br. et 15-16, quoting the 1999 Patent at col. 4:35-37.)

Plaintiff orget that an "electronic element" in all of the potents in mak should be construed to mann "a series having distinct electrical characteristics and laying terminals at which it may be connected to other efements to form a object that stillizes a semicosductor device," (Pl. Br. at 14).

Defendant urges that the term be construed to mean. "A reinrockip and an automor" in the '207 and '155 estants. Defendant further contends that the term is ambiguous in the context of the 1999 and 367 cases to. and thes cannot be defined at all.

Because this is the most body contested term, and its definition is critical to the construction of the pulsata, I will manustize the parties arguments in some detail. Definitional Sources.

Plain Menning: Both parties place great schinge on dictionary definitions. Yet while using the same dictionary, they come up with two different "plain" meanings for this key phrase.

Plaintiff notes that the Dictionary of Scientific and Technical Terms (McOrany Hill 5th ed. 1994). ("McGraw HRI") does not contain a definition for the phrase "electronic element." But it does define both the word "electronic" and the word "element." FN2 So Plaintiff puts those two definitions together and argues that the "definitions of the words that make up this term *371 provids a clear ordinary meming." (P). Br. at 14),

> PNZ. Both parties agree on the use of the McOnew Hall Dictionary of Scientific and Technical Terms.

Plaintiff cites to the definition the word "element," as "component," which in turn is defined as, "any electric device ... having distinct electrical characteristics and having forminals at which it may be consected to other compenents to ferm a circuit." Id. at 424. Mo-Graw Hill defines "electronic" as "[p]ertaining ... to chould ... utilizing electron devices ... 44 M 661. and definer "electron device" as "a device in which conduction is principally by electrons moving through a vacuum, gus, or comiconductor." <u>Id. at 660.</u> Observing that vacation and gas conduction are irrelevent to the patents in mit, Plaintiff notes that Mo-Other Hill defines the term "semiconductor device" as "electroide device in which the characteristic distinguishing electronic conduction takes place within a verniconductor." Id. at 1790. (McGraw Hill (6th. ed.2003), p. 1895 also defines "semicunductor" to recen, "A solid crystalline material whose electrical conductivity is intermediate between that of a conductor and ga insulator, ranging from about 10 : mbos to 10 " mino per meter, and is natially strongly temperature-dependent," Plaintiff realies no reference to this definition.)

Duftednote agree with Plaintiffs deficition of the word "electronio" and also with Plaintiff's observation that the word "element" is syncarymous with "component." But taking off from that, they observe that McGraw Hill-while lacking a definition for the plurase "electronic element"-dues contain a definition for the phrase "electronic component." And it is not the same as the combined definition of the words

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"electronic" and "element" crafted by Plaintiff.
Rather, "electronic component" means, "A component which is able to amplify or control voltages or current without mechanical or other nun-electrical command, or to switch currents ar voltages without mechanical switches, comples include electron tubes, transistors, and other solid-state devices." Mc-Oraw Hill at 701. Defending argues that this is superior to a definition that combines the separate definitions for the terms "electronic" and "component" because, inter alia, the term "component" as defined by McGraw Hill relates to the wrong field-filectricity as opposed to Electronics and is therefore not set. ENJ.

FML I find it interesting that beofense Hill contains no definition for the term "element"-the admitted synonym for "compenent" (and the word Leighton notably uses in the pelect)-that falls within the field of Electronics, either. Indeed, the "electron-component" synonym that Defendant invokes in order to term my attention to the phrase "electronic component" (which is not the phrase wood in the patent) is found under the heading Electricity, not Electronics, which turns Defendant's argument back on itself!

A it important to Defendant that I prefer the definition of "electronic component" over Plaintiffs combined definition of the separate terms "efcotronic" plant "component" because the definition of "electronic component" incorporates (and, according. to Defendent, is limited to) "polisistate devices." That term is defined by McGraw Hill to mean, "A device, other them a conductor, which uses toggette. electrical and other properties of solid materials, as approach to vacuum or geneous devices." The teelicted language (which appears to finit "electronic components" to solid-state devices, such as exignachips) is critical to Deflectant for two scasons. First, Defendant argues that the only solid state device that satisfies the criteria of the potent is a micro-obly. Second, in the 1999 and 367 papers, a bare extrans, which is a conductor (and thus not a solid state device), is embedded. It is that, Defeatlent ergees, Which renders the term "electronic aleagers" indefinable in connection with those two patents.

"372 The fact that both puriles agree that the word "component" is syncotymous with the patentee's chosen word "element," and that there is a definition for the phrase "electronic component" in McCrew Hill, raight be thought to solve the definitional compdrum, indeed, there is a certain Occard's Rasov kind of elegance to Defendant's point.

However, there are two serious finws with this supercent. First, defining "electronic element" to exclude a conductor. Nice an anisane, reads a disclosed embediment (in the case of the '099 patent, the preferred embediment) out of the petent. Adopting that definition is thus inconsistent with the rules that claims are to be consistent with the specifications.

Becond, as is so often the case with extentific and tenhaiosi definitions, Defendant's proposed definition is tratological-that is, it contains the very word ("component") that it purports to define. To be uneful. to a jury, the construction of the planes "electronic. component" cannot define the word "component" at "a component." FNA Since there is no clue within the definition of "electronic component" to what a "component" might be (other than a non-axhaustive But of examples, about which more in a recursof), one could only craft a workship definition of "electronic compensat" by incorporating into it the definition of the undefined word-"component"-that appears claswhere in the McCorw Hill Dictionary, Of course, Defreduct does not want me to do that, because then we would and up with Plaintiff's definition (or its func-Honel equivalent)!

ENA. Since Defindant inelets (and Plaintiff agrees) that "component" is syncopyments with "clement," I could turn to yet mether dictionary-the Oxford English Dictionary, which is used by persons not skilled in any art except the art of looking up words-and find a definition of "element" that fits quite nicely into the language of the patent: "a countinent part." However, that definition would be far too broad to fit within Plaintiff's claimed invention (see below at 374-375).

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What should be obvious from all of the above is that I cannot furthion a so-called "ordinary meaning" definition of the term "electronic element" by using a dictionary alone. Nor should I. When interpreting terms used in a patent, one is required to look at how the better is used in the patent itself and to its prosecution instary, to see if that use is consistent or inconstatent with any dictionary definition. It is to that exercise that we now turn.

Specifications: The specifications for the '207 point octobally do not suggest that the form "electronic element" should be defined as carrowly as Defendant urges. For example, it says:

Electronic element 20 way take a wide variety of functions and perform a wide variety of functions...[It may include] a micro-ohip 22 facileding a wire antenna 24 connected thereto, a micro-ohip 22 and a circuit hostel automa 24, a read/write micro-ohip 22 and a wire coil automa 24, or any other soltable electronic element.

Similarly, in the related <u>'099 natural</u>. "Stoctroads eletreest 20 may take a wide variety of forms (microprocessor thip, circula board, transponder, etc.)." And as noted above, Fig. 4, one of the disclosed conbadingers of the <u>1999 natural</u>, shows the electronic element to be a bare existing.

Plaintiff has specifically disclaimed to the court any offert to invoke patent rights in whatever the "electronic element" might be. However, Plaintiff's use of bread language in the specifications clearly eviaces an attempt to include any sort of electronic element that presently can or might in the future be usefully implanted in a smart card-not just microchips and automas, "373 which appear to be the preferred embodiment given today's technology.

IG Defindent correctly notes that still of the disclosed embodiments in the "207 and "155 patents are variations on the "micro-chip plus antenus" thome, and all the disclosed embodiments in the "099 and 367 patents are variations on the "micro-chip or antenus" theme. But it is bombook law that a patent is not limited to its disclosed embodiments. Lieber-Florishment Co. v. Marked her. 358, F.34 898, 906 (Fed.Cir.2004) (makes patentic specifically indicates

such a limitation, claims about not be construed as limited to embodiments of invention taving a particclar feature simply because all embodiments disclosed in the specifications stars that feature). A review of the file wrapper does not disclose asything staggesting that Leighton over disclaimed the use of any type of electronic device in connection with improcess during the presecution of the patent, so Obserthan caused invoke any patent estopped to limit the patent's scope to the disclosed embodiments.

Plaintiff further argues that constraing relocatonic clement" to mean "Injury-chip and antonna" with respect to the '207 and '155 authors would violete the decirine of claim differentiation. Under this doctrine, each claim in a potent is presumed to have a different scope. See, e.g., <u>Versa Core. v. Ap-Bae ha'l Ltd., 192</u> F.1d 1375, 1329-30 (Fed Cir. 2004). "The difference to meaning and scope between claims is presumed to be algorificant '[I]to the extent that the absence of such difference in meaning and scope would make a claim Repertuous." " <u>Id.</u> (quoting <u>Tandon Corp. v. United</u> States Int 7 Track Commits 831 F.24 1617, 1021 (Fed.Cic.1987)). Therefore, limitations of dependent claims are not read onto independent claims, because to do so would render the independent chains superfluore as displicative of the dependent claims.

In the '207 prioril dependent claims 1) and 14 of the 227 point more with scope of the term "electronic element?" as it appears in independent claim 1 by specifying that the "electronic element" must be "a solution chip and no associated wire autemas" (claim 13) or "a micro-chip and as associated circuit hourd appears "claim 14). Defining "electronic element" to mean only "a micro-chip and an antenna" would improperly impose the limitations of dependent claims 13 and 14 ento independent claim 1. Defendent fails to refere this argument.

Prosecution filintory: Plaintiff also argues that size prosecution history of these paramet demonstrates that the term "alectronic element" or used in the potents in suit should be read as broadly as Plaintiffs trigo-and, moreover, that a person of ordinary skill in the art would so read it.

One of the critical pater are pitterns is U.S. Patern No.

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5.519.201, a prior art patent that is cited in the prosecution history of the '367 origin. This patent relates rulate to "amost card" technology. Persons skilled in the est would be expected to be furnitiar with this patent.

The '201 potent contains the following language concerning the electronics that make smarl outle work: Some identification cards instante an integrated circuit and are known as "integrated circuit cards" or 'Smart Cards." More generally, berein, 'Smart Cards' refers to any postable outl-like device which includes one or more electronic components, i.e., active components such as integrated circuits, translators and diodes, and passive components such as resisters, expecitors and inductors.

Col. 1:32-38.

Blacwhere in the '201 Patent, the inventor states that electronic elements (or components, so he calls them) can include:

integrated circuit modules, translators, diodes, and passive components such as *374 resistors, inductors and capesitaters. Further, an integrated circuit module for one with the invention can be a printed check bound to which is attached one or more integrated circuit chips, a printed circuit board without an integrated elecals chip attached, or just an integrated circuit chip.

(Pt. Br. at 16, quoting the 201 patent at col. 2:55-64.) This language is externely broad and does not at all auggest that "electronic elements" in "manri captions are limited to micro-chips and their enterness. Nor does it support Defendant's argument that the temp "electronic element" as used in the 367 and 592 tallants is indefinable because an enterno-which all parties agree is a "possive component" or an "inductor"-falls outside the archit of "electronic elements." Defendant urges the Court to read these paratigos (in particular the former passage) such that only "active components" are encompassed within the reach of the temp "electronic components," but such a reading defice logic as well as basic principles of English grantman.

PNS. Birmilarly, the prior at U.S. Patent No.

5.412,192, cited in the provisional application for the '207 patent and teaching a system for changing the activation states of a data card, such as a charge card, uses the phrase "laborad electronics" to refer to the "wife coil antenna and micro obly" of the '207 provisional application and defines that phrase in an extremely broad manner to include "battery, fines, crystal display, and photocal!" ('207 Previsional Application at 19).

PM6. The quoted language in the 201 potent also indicates that Defendent's proposed one of the McGraw Hill definition of "electronic component" for the patients in stait is misplaced since it would read out the "passive components" included within the entegory of "electronic component" used in the 201 patent.

Defendant argues that an antenna current possibly be an electronic device became it is an electromagnetic device (according to McGraw Hill), which is tomething entirely different However, as noted above, the word "electronic" mean "pertaining to electron devices." Antennas "pertains" or relate to "electron devices" by functioning with them to complete the electrony that evolution to complete the electrony that evolutions are also to constant and the electrony.

Moreover, the prior set patents draw a distinction between sodies and passive electronic devices, with the latter plainty including devices that function using electromagnetic action. For example, the '201 natent notes that "observable components" can include "passive components" such as "industree," which would encourses antennas. '201 natent, col. 1:32-38.

Result

It is easy to reject Desimdant's proposed definition of "electronic element" as "a combination of a microohip and an antaque" with regard to the '207 and '155 patents. Such a construction, as Plaintiff correctly observes, would violate almost every cuts of claim construction. It is inconsistent with the broad language used in the specifications. It is inconsistent with prior 358 F.Supp.2d 361 358 F.Supp.2d 361 (Cito an 358 P.Sono.2d 361)

ert putcuts that use the same term. And it is far ngrnower than even the distinguy defluition of the phrate "electronic component" that Defendant ad-

it is equally only to reject Defendant's argument that the term "electronic element" is used differently in the '376 and <u>'799 catents,</u> and cannot be defined at all 49 used in those patents because one disclosed canbodiment identifies something (so automa) that is not, in fact, an electronic element. Defendance thesis that this term is used shifterently in the latter two poswith it entirely dependent on accomplance of its extrendy narrow construction of the term "electronic element," which "limits that form to a combination of a microchip and an antenna." FMT Since I *375 have rejected that narrow construction, I must reject the argument based thereon. And the proceeding discussion highlights the flavo in Defendant's claim that the term cannot be defined.

> FN7. Specifically, Oberthur claims that becourse the 1299 nateral and 1367 naterals indicale that the embedded "electronic almost" is only an enlease-not a micro-chip and asteman-this distinction readers the term areforeous. (Def. Br. at \$1.) Unless the definition of "electronic element" is confliped to "mitrookip and animaga"-ao argument [dacline to accept-this argument makes no \$600±6.

This traves me with the took of deciding whether Plaintiffe proposed definition (or some variant on it) is the correct construction of the torus, based spinly on intrinsic evidence. As I make this decision, I must keep in mind that chins construction is essentially the creding of a jury instruction, so the torm definition south be comprehensible by a key joint as well as one skilled in the set.

Leighton's proposed definition is "a device baying distinct electrical characteristics and having terminals. at which it may be commotted to other elements to form a circuit that utilizes a semiconductor device." This combines the following definitions (from Mo-Greev Rüft:

Riscronic: pertaining to circults.....utilizing electron

denima

Electron devices: a device in which conduction is wine to by be efectrons movide through a._acradoconductor

Sentenniuctor Davice: an electronic device in which the distinguishing electronic conduction takes place within a semiconductor

Component: any electric device, having distinct elecfried characteristics and having terminals at which it may be connected to other components to form a circuiL

Plaintiff's Invocation of the McCapy Hill definition of "component" rules out the use of a inscaler, less technical definition for the word element, such as "a constituent part." This is consistent with the argument made in Padatiff's brief that, because the word "electronic" modifies "element," the patentee status. use of just one specific type of circuit-one that uses a Straigenductor device.

Coupling this with the broad wording of the specificntion ("Electronic element 20 may take a wiste variety of forms.....") and the equally broad use of the term electronic element and the analogous term eleckonio compenent in critical prior est patento, I conclude that to construe this term with reference solely to intrinsic evidence we must define additional terms (from McCraw Hill):

Semiconductor: a solid crystalline material whose electrical conductivity to intermediate between that of a conductor and an insulator...

Conductor: a wire, cable or other body or medium that is stribble for carrying electric current.

Ironiator: a device having high chetrical registance and used for supporting or especialing conductors to prevent underlined flow of cuttest from them to other objects.

Electrical: related to or associated with electricity, but not occulating or having its proporties or characteristics.

I craft the following instruction to give to the jury observing the plants "electronic element":

Ladica and geotherous, the first term that I small define the you is "Electronic element." That is a technical term. The word "electronic" means "pertaining to circuits that use something called electron

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devices." An electron device, for the purposes of this patent, is a device or thing in which electrical current. is carried ("conducted" in the technical term) principally by electrons moving through something called a *376 semiconductor. So electronic means "periolning to circuits utilizing a somiconductor device." An "element" is the same skipg as a "component," and a "component" is an electrical device (something that has distinct characteristics related to or associated with electricity) and that has terminals, or and points, at which it can be connected to other components to forms a "circult," which is a combination of electrically interconnected components. So "electronic olemant" messe, "a device or fring that has distinct characteristics related to electricity, and that also has terminute at which it may be connected to other distinatly electrical devices or things in order to form a circuit, in which electrons move through devices called senseonductors."

2. "Non-Electronic Carrier"

[2] A "non-electronic carrier" means, "A device that holds an electronic element to protect it from physical damage during lumination, where the device is not part of a circuit that utilizes a semiconductor device."

Picipies and the plane "non-electronic corrior" generally appears in the claims at issue in the following content: "positioning said at least one electronic classest in the obsence of a non-electronic current directly between said first and second plastic over sheets." (Pl. Br. at 18, citing Cohen Dock at Exh. L. p. 3.) Definedent refers to the same language in claim 1 of the 207 papers. Then, as noted shove, the entence of the Patents in the lack of any "non-electronic carrier."

According to Plaintiff, a "corrier" is defined as a "compartmentalized holder used for storing, transporting, hashing, and testing electronic devices to protect them from physical decage," (Pl. Br. at 18, quoting the Blackronic Packaging, Microelectronics, and interconnection Dictionary ("EPMI Dictionary"), p. 26.) Plaintiff refers to just prior definition of "electronic" at "pertaining to circuits utilizing semi-conductor devices," and to Webster's Collegiste Dic-

tionary (10th ed. 1999) ("Webster's"), p. 788, for the definition of "non-" as negating the "assaul explectably) positive characteristics" of "electronic." (Pl. Br. at 18.)

Plaintiff also wiges that there dictionary meanings should be modified to reflect the prosecution history of the 207 patent, discussed above, during which Leighton clarified that no buffer zone or protection was nacted for the embodied electronic element during lamination in any of the Patents. (See discussion asons, p. 369.)

Bered on the dictionary definitions and the presecution history, therefore, Plaintiff argues that a "son-electronic carrier" should be construed to mean "a holder used for electronic devices to protect them from physical damage, which device is not part of a circuit that utilizes a newiconstructor device." (Id. of 372-373). Plaintiff omits from the dictionary definitions elted above words that it claims would be insecurate here (i.e., compartmentalized, storing, transporting, heating, and testing).

Defendant's proposed definition is very similar, and reads. "A structure without any substantial electronic function, such as a recess, buffer or protective carrier, that of least partially protects during lamination the 'electronic element' from damage osmod by laminadon pressure." (Def. Br. at 22.) Defendant also value on the prospertion history of the 207 pasent to suppost the idea that the significant difference between the 207 retent and the 1924 mount in the fact that the 207 patent does not require protection of the electronic element during the landaution process. (Id.) Defendant additionally concludes and I agree-that Leighton relinquished any faterpretation of "non-electronic corrier" "377 that includes any protestion for the electronic element, Southwell Tache. Inc. v. Cardinal IG Co., 54 F.3d 1570 (Fed.Co.1995). (See Daf. Br. at 22.) Defendant notes that Leighton made the sume arguments about the absence of protection of the electronic elegant during prosecution of the 1999 patent. (Def. St. at \$2.)

I agree with the purion that Leighton intended to disthrough the Patents at issue here from the 1024 patent on the basis of, among other things, the fact that no 358 F.Supp.2d 36) 358 P.Supp.2d 36) (Cite as: 358 F.Supp.2d 36))

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protection is needed for the electronic element during lumination in the Peterts at large. Plaintiff's construction of the phases "non-electronic currier" addresses this issue without redundancy or ambiguity. I therefore adopt it is home wirbs.

3. "Directly"

"Directly" means, "In immediate physical contact."

(8) Plaintiff states that "directly" appears in each claims in the following contact, "positioning said at least one electronic element in the absence of a non-electronic carrier directly between said first and second plastic cure shoese." (Pl. Br. at 21; Cohen Decl., Each. L.) Defendant cafers to the same language in claims 1 and 16 of the "207 mannt. (Def. Br. at 25.)

Both parties cite to Webster's for the definition of "directly" as meaning "in insuediste physical conlect." (Pl. Br. at 21; Def. Br. at 25.) Plajoriff rests on
this. Defendant orges additional lenguage, however,
defining "directly" to mean that "there is nothing
between the 'electronic element' and the flast plastic
cose sheet and nothing between the 'electronic element' and the second plastic core direct." (Def. Br. at
25.) That just says the same thing in more words that
add nothing to the definition. I therefore elect to go
with Plaintiff's specier and more elegant version.

4. "Competiting the Steps Of"

This planes is or neight to be edif-explaneaury. However, Defendant contends that these words mean that the steps secretal in the potent must be performed in the exact order indicated in the potent.

The words themselves afceit of no such meaning. "Comprising" spears, "being made up of," and nothing more than that "Nap" mount "a stage in a process" (both definitions of these plain English, utterly non-technical words are taken from Webster's New Collegiate Dictionary). Neither of these words becomerily implies that there is any particular order in which the steps must be taken.

FNR. It certainly does not mean "additional," as argued by Plaintiff in its Advitoral, bearing presentation.

Defendant argues that if the steps too not performed is the order indicated, the end product will not be a plastic card with a sufficiently emooth surface to recoive dye sublimetion printing. (Del: Br. at 29.) That may be or it may not be, but them is nothing in the words "comprising the steps of" that imparts the concept of order. At various points in the petent claims, Plaintiff does use "ordering" Isaguage-for example, Leighton's use of the word "subsequently" in olision 15 of the 155 patent and claim 16 of the 207 **DELECT.** EXCESS that step (c)(ii) must follow step (c)(ii). Similarly, the use of words like "following" (1999) patent, claim 8, and 367 palent, claim 7); "prior to" <u>C367 patent</u> claims 8 and 14) and "after" <u>C367</u> natent, claim 22) expressly indicate that the patentee intended things to flow in a sequential order, to the absence of each language, no order will be presumed. Alltrit Inc. v. Symantee Corp., 318 F.3d 1363, 1369 (Fed.Cir.2001).

*376 A variest of Defendanc's argament, but a far more interesting one, will be found when we mare the issue of whether the use of the words "first" and "accord" in several patent claims fairly implies sequential ordering, or is simply an attempt to distinguish between different applications of pressure without importing any order. But that is for inter discussion.

5. "Encaperiated By and Encapedating"

(2) The phrase "encapeutated by" is construed to recom, "Bucketed by," and "encapeutating" is continued to mean, "Replosing."

Plaintiff again argues that the plain meaning of these words suffices to construct from the he jury. I agree.

The places "exceptulated by" appears in claim 1 of the 207 pagest as follows: "positioning said core in a lambator apparatus, and subjecting said core to a heat and pressure cycle... applying first pressure to said core for a second period of time such that said at least one electronic element is encapsolated by said core." (Internal numerical references conitied). See also obtain 17 of the 1999 patent; claim 20 of the 367 patent; claim 1 of the 155 patent. Claim 15 of the 207 patent recites the term in the second step of the

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best and pressure cycle "applying a second pressure uniformly across said core for exceptulating said at least one electronic element within said compolled. plantic flow."

Defendant proposes that the phrase means: that the 'cose' must fully enclose the 'electronic element' which has been placed 'directly' between the "And and second plastic core about" so that even the sides of the 'electronic element' are sucrounded by the "first and second plastic core sheets." That is, if the 'electronic element' is not placed directly between the 'first and second plastic core sheets' or has been efreedy encapsulated by other material, the 'first and accord plastic core sheats' carnot excepsolate the "electronic element,"

(Def. Br. at 31.)

Defendant again uses for too many words to define a simple phenomenon. Webster's non-technical definition of "encaperatete" is "to enclose in or as if in a capsule." (Def. Br. at 31.) "Capsule" is defined as "e. compact often scaled and detectable container or compartment," (id.) Thus, according to Defendant, when an element is encaperiated by portething, that something fully encloses the element, as though it were contained within a scaled compartment. Defordust notes that in the '207 specification, for exsuspic, the electronic element is "fully" scaled in by the plactic core elects after lamination, and that pothing "intervence between the case sheets and the electronic element." (Def. Br. at 32-33.) Leighton agnerwally amended "encapsulated in said core" to "encapsolated by said core" during the prosecution of the 207 patent, a revision the Defendant views as highly significant. (Def. Br. at 33, citing Office Action Response, p. 75 (emphasis added).) According to Defendant, "encappulated in" would allow an interwouling material, such as "ale." By contrast, according to Defendant, "encapsulated by" procludes air and requires that the plactic cost shoots completely surmund and make contact with the electronic element. (44)

All this is interesting, but when persod (as we did et the Markuss beering), it is apparent that Defendant is again trying to read the specifications out of the

definition-and to render the putest meaningless. The patrent distributes a process in which the first step is to place an electronic atomani between two sheets of plastic, thus making what the Court called "a sandwith." In this sandwich, the element touches both sheets of plastic and is not *379 shielded from them. However, for the plastic to touch every square millimeter of the electronic element at the moment the randwich is made (which is while the plustic is still a solid, before it has been bested and liquefied), the element would have to be completely planar. The efectronic elements shown in the disclosed embodiments-such as reignochips, wire coil automes, circuit boards, transponders-are not completely plants. They are three dimensional objects, and they can have inregular surfaces. This mount that, when the "Minibrish" is made by placing the stemest between the two shaets of plactic, it is possible that not every equate millimeter of the element will be toucking the plantic. But these imbultational pockets of air do not take the "earthwich" out of the ambit of the claims in nell, because they do not "protect" the planear from the plantic (so that when the plantic resits it will touch every square millimeter of the elections) and so do not cross the greet divide between this family of palests and the prior art <u>1934 patent,</u> which placed the element in a little container, before matting the pisate. sheets.

6. "Coating At Least One of Sold Order Surfaces of Said Core With a Layer of log-

[10] "Coating at least one of said cuter surfaces of said cere with a layer of ink" means, "Coverlag at kest one of said outer surfaces of said core with a finishing layer of lak."

The only term in this phrase requiring construction is: the word "coating."

Plaintiff's proposed definition in that "enaling" research "bovering." (FL Br. at 24.) Plaintiff cites Wetster's. p. 219, for the ordinary meaning of "cooling" as "2: to cover or appeal with a finishing, protecting, or ceclosing layer," and notes that the claims in the Patdate specify that the layer is ink. (Pl. Br. at 24.)

Claim one of the '207 carent revites the couring step

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es follows:

(b) positioning said at least one electronic element ... directly between said first and second plastic core sheets to form a cure, said plastic core sheets defining a pair of inner and cuter surfaces of said core, (c) positioning said core in a brokester appearance, and subjecting said core to a heat and pressure cycle..., (d) coating at least one of said outer surfaces of said core with a layer of talk, and (c) applying a layer of overlaminate film to at least one of said outer surfaces of said core.

207_patent, col. 6:22-38. The specification further provides, "... the use of smalle finished landactor plates provides surfaces with a slightly roughened or textured quality which will facilitate the application of a coating thereto..." 207 natent, col. 4:54-58. The Stammary of the invention in the 227_patent describes that "at least one of the upper and lower surfaces of the core comprision) a coating printed or otherwise applied thereto..." 207 patent, col. 2:20-24, and further explains that the "core is coated on at least one of it's [sic] upper and lower surfaces with a layer of printing task. This may be accomplished by a wide variety of printing techniques." 207 patent, col. 5:6-12.

The '099 nates) contains similar language, using "coating" and "covering" interchangeably "the elect of plastic card stock ... comprises at least core with at least one surface thereof covered by a layer of ink." '099 patent, ool. 7:45-51 (semerical references emitted). The prospection histories of the '207 patent and the '099 natest charify that "coating" is used to mean above than merely "printing on."

It is important to note that the word "core" is used in all of the patents to describe what I have termed the "sandwich" 386 -that is, the electronic element and the two plastic shoets that directly touch it. Nothing more is included in the definition of the word "core." FNO

2N2. Note that the "book," referred to earlier, is comprised of the "cure" pair imminating pade and steel plates that facilitate the famination process but are not a part of the finished product. See, e.g., '207 name, col.

4:35-40.

Defeatest proposes that "coating... with a layer of ink" means that "the lak layer most directly contact at least one of the 'outer surfaces' of the 'core," ' (Def. Br. at 34.) Defendant cites to the claim and specification language clied above in support of its definition. Defendant also notes that the '207 specification states that, "This printing step is performed to coul at least one surface of core with a layer of neutherically pleasing ink." (Dec. Br. at 35, quoting 207 nates), col. 5:6-17. (manoric references arother).) Finally, Dofeadant notes that Leighton "did not disclose applying another layer with ink imprinted no it to an outer surface of the core itself," and then quotes the '207 polest. "This layer of ink commetically billes the one or more electronic elements that are embedded within core, and prevents those one or more electronic elements from showing through the relatively thin core." (Def. Br. at 35, quoting the 707 mases, col. 5:17-21. (observed references conitied).) In sure, Defendant argues that the intrinsic evidence leads to the conclusinn that "conting ... with a layer of ligh" means the lak is applied to at least one of the "poter purfaces" of the "core," so the layer of lisk "directly contacts that outer core surface." (Def. Br. at 25.)

As is oferr from the above language, Defendant is trying to precise Plaintiff from claiming that the patient covers a process wherein something is applied directly to the surface of the core before the surface is covered with tak. The analogy and by the parties at the Markanan hearing was as follows: Assume we are interpreting the sentence, "The table is covered with tak." Obviously, if a layer of tak is applied directly to the top surface of the table, the table is covered with tak. The question posed by the porties was whether, if a tableclette were placed over the top surface of the table and the cleth were then covered with tak, the table would be covered with tak.

The enswer is no. The table would then be covered with an intratalant tablectoth. The ink would cover the cloth, and the cloth would cover the table. But the ink would not cost the table-it would cost the cloth. This notion of immediacy (or what Defendant calls direct contact) is implicit to the dictionary definition of "cost," which is "to cover or spread with a finish-

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ing, protecting or enclosing layer." Ink applied otherwise than to the surface of the core itself would not "finish" or "enclose" the core.

7. "Miniami ... Rate Pressure"

[11] The word "minimal" in the physics "related first run pressure" recent, "The smallest or beat amount [of run pressure] successary to accomplish the designated step."

At the outset, I note that I am focusing here solely on the words "minimal... mm pressure" rather than on the entire phrase "minimal first rum pressure." This is because the parties greatly dispute what "first" means or used in this phrase, and this is not the phree to discust that issue. This phrase appears in claim 16 of the '207 meters, and claim 15 of the '155 patents

positioning said core in a laminater apparetus, and subjecting said core to a heat and pressure cycle ... comprising the stops of: (i) heating said core is said. *351 laminator, in the presence of a octational first race pressure.

'207, col. 8:19-23; '155 patent, col. 8:15-19.

The specifications for the '207 patent indicate that "minimal" means "little or so." Col. 4:41-44.

Defendant proposes that this phrase monte "applying, little or no greature to the 'cure,' but in the event a run pressure some than about 10 pounds per square lach."

According to Defendent, "minimal" is not a technical term, and it is defined in Webster's to mean "relating to ar being a rainlinean: constituting the least possible size, number or degree." (Def. Hr. at 36.) "Minimum" is defined in Webster's to mean, "the least quantity amignable, adminalite, or possible." (Id.) To this extent, Defendant is precisely correct.

But Oberthur goes on to argue Leighten has capped the minimal first sum pressure at 10 pounds per square inch for all applications. (Def. Br. at 37.) & derives this number from language in the specifications for the '099 and '357 patents (whose clubus, laterestingly, do not use the phrase "minimal...rampressure"). The '099 parent (ool. 5:56-61) says this about the amount of pressure required for a particular stee:

One book is positioned in landmater ... the first landmater platene action cycle is initiated by cleating hardwater platene preferably applying little or no run pressure to book. This is preferably done using hydraulic pressure, and a pressure not to exceed about 10 pounds per square tach is believed sufficient for recet applications.

'099 patent, col. 5:56-61 (numerical reférences oraitted.)

I reject Defendant's proposed definition. The word "minimal" does not connote any sent of memorie cap. And to the estent the references in the '099 and '367 specifications to 10 p.s.i. are relevant at all, I am constrained to note that the patentes expressly states that he "helieves" this amount of pressure will be "pufficient for most applications"-instituting that it is entirely possible that alightly more pressure (how much is not specified) may be needed for some applications.

But nothing in Weisster's or the potent specifications reaccinly suggests that 10 p.s.i. of rum pressure will qualify as "the least possible size" in every possible case. Therefore, I reject Defendant's argument.

6. "First Pressure," "First Ham Pressure," "Second Pressure" and "Third Pressure"

[12] Claim 1(c) of the '207 calcut verites there forms in the following marger:

(i) heating said core for a first period of times, (ii) opplying a first pressure to said core for a second periaid of time such that said at least one electronic element is encapsulated by said core; (iii) cooling said one while applying a second pressure to said core.

207 materit col. 6:32-36.

Claim 16(c) recitae:

(i) heating said core in said laminator, in the presence of a minimal first rate pressure, to a temperature which causes controlled flow of said phesic which moles up said first and accord plastic core shoets; (ii) applying a second presence uniformly across said over for encapsulating said at least one electronic element within said controlled flow plastic; (iii) sub-

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sequently cooling said core in conjunction with the concurrent application of a third pressure uniformly across said core.

7207 potent, col. 9:22-32.

The issue bote is whether the terms "first." "second" and "third," as used in this and other claims, rafter to the acquential order in which the steps are to be performed-so that, in claim 1, step (c)(ii) *383 must be performed before step (c)(iii), and in claim 16, step (c)(i) must be performed before step (c)(ii), which must be parformed before stap (c)(HD-or whether there words are weed simply to differentiate between like elements (three different applications of prossurc), without intending any sequential limitation, so that the stops can be performed in any sequestial order.

It is of course well settled that "comprising" language renders a claim open-ended. Invitragen Corp., v. Blocrett Affr., 327 P.36 | 364, 1368 (Fpt.Cir.2063). And in many petests, the words "first pressure," "second pressure," and "third pressure" would ledicate eathing rapre than that these are governed different levels of pressure, which renders of the patent would have to distinguish among as they persed the patent.

(13) It is also true, however, that the series "first." "second" and "third" can be read to denote the order of steps. See Applera Corp. v. Micromass UK Ltd. 186 F.Suran 2d 487, 505 (D.Del 2002), affid without published option, 60 Pcd Amy, 800 (Fed Cir 2003). While the terms "first," "second," and "third" are commonly used to identify separate claim elements. nothing procludes finding that the terms also specify temporal at portificati relationships. Id. Where the language of the claim, the specification and the proaccortism history logically indicate a sequential precom, recited steps in a claim must be read to require a conveniel order. See, e.g., Land Fairchild Corp. v. Same Corp., 181 F.3d 1313, 1322 (Fed.Cir.1999); Mantech Envil. Corp. v. Hudson Envil. Services Inc., 152 F.3d 1368, 1376 (Fed.Cir.1998).

The context of these terms in the patents in salt makes it abundantly clear that the length are used to denote the relative order of the stope-that is, their or-

der vis-t-vis such other, Indeed, counsel for Plaintiff admitted or much at the Markener bearing. For exemple, in claim 1, step (c) of the '207 patent, the pressure that is applied during cooling must follow the pressure that is applied to "enouncedate" the element in plastic, in claim 16 of the same patent, the "minimal sam pressure" that is applied during the process of beating the core and melting the plantic pecouncily precedes the application of the "second presture" which encapsulates the element in Hematical. or partially liquefied plastic, which in tern necessarilly precedes application of the "third pressure" as the hot, molten plestic cools. FNIO Thus, the words "first," "second" and "third" both displayalsh among three distinct steps in the claimed process and denote the order in which the three steps outlined in the claims are to be performed relative to one another,

> FNIO, Plaintiff conceded in its Marketon presentation that is claim 16, step c(iii) must follow step of it), pointing to the use of the word "subsequently" to step c(iii).

However, Defendant would have me go further. Obestinar organic that these terms should be construed. so that "first pressure" and "first rum pressure" would be limited to "the very first procesure expliced during the hest and pressure cycle." The term "second pressure" would be limited to "the next pressure applied. after the first pressure during the heat sad pressure cycle." And the torra "third pressure" would be limited to "the next pressure applied after the second prossure during the best and pressure cycle." (Def. Br. at 37.) Defendant's proposed construction prechales the application of any pressure prior to the spplication of whatever pressure is designated as "first" and the insertion of any pressure between the stay invalving the "first present" and the step involving the "scoond presence." In "343 other woods, Defendant argues that the words "first," "second," and "third" tactions not only the relative order of the claimed stops vis-4-vis each other, but also the absolute order in which they must be performed.

Definition has not presented any convincing reason why the words "first," "record" and "third" as used in the cited claims mean connects absolute order as opposed to relative order. Defendant's counter-ar-

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gaments based on the purported "main objective" of the potent is not persuadive; seither does the patenter's use of the plants "highly coordinated" process indicate that "first," "second" and "third" mean "very first" and "next one after the very first," sie.

Moreover, language taken from a dependent claim strongly suggests that the words ought not to bear the limiting metaing surigned to them by Defandant, Dependent claim IR of the '367 muses resides, "The procost eccording to [independent] claim 1 whomin the pressure on mid core in step (c)(i) is less than 10 n.s.i." Step (c)(l) by chain I recited heating the core for "a first period of time." It is not until step (c)(ii) of chaim I that "a first preseure" is applied. Indeed, in the '207 provisional application, chain 1 expressly laditated that no pressure was to be applied to the core at the beginning of the first heat cycle. (That scatriotion yets removed from the final '207 application.) Thes, dependent claim 18 of the '367 micest narrows chilm I by reciting an application of very light pressure (less than 10 parts) prior in the application of "a fest pressure."

But Defendant argues that claim 18 does not help Leighton become the claim itself is indefinite under the "Lack of Antecedent Basis" doctrine as set forth in the Manual of Putent Exercising Procedure (MPEP) § 2173.05(c).

Dependent claim 18 recites "the pressure" to be applied during a certain step (step (o)(i)) as disclosed in claim 1. Step (o)(i) in claim 1 does not mention any application of pressure. Therefore, according to Defendant, "the pressure on said core in step (c)(i)" (craphania added), as recited in claim 18, has no antacedent, and Leighton is trying to read something into that claim that is not there.

Plaintiff responds that claim J and claim 18 of the 362 patent disclose two different embediments of a single invention, and that as long as the two or three pressures disclosed in the patent claims are part of an enclosure/lumination process, that process is covered by the patent.

On reflection, I reject defindant's argument as too narrow a reading of the "lack of antocodest basis" doctrine.

Section 2173-05(e) of the MPEP reads, in portingst part.

A claim in indefinite when it contains words or phreses whose message is unclear. The lack of clarity could arise where a claim refers to "mid lever" or "the lever," where the claim contains so certier recitation or limitation of a lever sad where it would be unclear as to what element the limitation was making reference.

However, the Masoni goes on to read:

Obviously, however, the failure to provide explicit enteredeal basis for terms does not always render a claim indefinite. If the scope of a claim would be reasonably excerninable by those skilled in the art, then the claim is not indefinite. The tetality of all the limitations of a claim and their interaction with each other map be considered to ascertain the inventor's contribution to the art.

Considering the "totality of all the limitations" of claims I and 18 of the "367 patent. Defendant's interpretation cannot be convext. Stop (a)(ii) of obsite I reciber, "384 "applying a first pressure to said care." As noted above, "a first pressure" does not accessarily mean that no pressure was applied during a prior step. While step (c)(i) does not specifically state that pressure must be applied, it does not preclude the application of pressure, either. Dependent claim 18 is most sensonably interpreted to limit claim 1 to the situation where pressure on the care in step (c)(i), if any, is less than 10 p.s.t. And I note that "less than 10 p.s.t." of pressure evaluation over.

[14] Courts interpreting parants mentinely avoid indefinstructed by interpreting language to provide for an antecedent basis. See, e.g., dates Aktabalas v. Andr. Pharmacontents. Inc., 222 F. Soon 2d. 423, 434 (S.D.N.Y.2002) (interpreting an antecedent phrace, "alkaline reacting compound," to include by definition the planae in question, "micro-cavironment," in order to (i) find antecedent basis for "the microcavironment" and (ii) avoid indefiniteness for lock of antecedent basis) (emphasis added), Most particuletly, in Dialtal Blamatrics, Inc., a Liberate, Inc., 149

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F.3d 1335, 1344 (Fed.Cir.1998), the Federal Circuit noted that if a claim is "sesceptible to a broader and secrower meaning, and the narrower one is clearly supported by the latriagio evidence white the broader one raises questions of enablement under [the MPEP], [the court must] adopt the narrower of the two." See also <u>Rhine r. Costo. Inc. 183 F.3d 1342. 1345 (Fed.Cir.1999)</u> (if a claim is susceptible to two interpretations, one of which moders it valid and the other of which renders it levelid, the claim must be construed to sestain its validity).

Outside the patent context, there are cases concluding that use of the definite article "the" particularizes the subject and narrows the pensible class of possible antecedents. For example, in Presser v. Complexioner of Internal Revenue, 501 U.S. 868, 902, 111 S.CL. 2631. 115 L.Bd.2d 764 (1991). Postice Scalin, in a concerning opinion that did not command a majority. on the Supreme Court, concluded that use of the definite article "the" in the phrase "the Courts of Law". (which appears in the Appointments Clame of the Constitution, Art. II, § 2, ct. 2) astroyed a class to specific "envisioned" members. Similarly, while esgaging in statistical construction in the consent of a patent case, the Federal Circuit concluded that Congreat's decision to say "the use" rather than "a use" meant "a specific" was rather then a "previously usdefined" use. Warner-Lombert Co. v. Apotor Corp. 316 F.3d 1348, 1336 (Fed.Cir.2003)(cities Freutos. 501 U.S. at 902, 111 S.Ct. 2631), Finally, in Americon Bia Association v. States, 231 F.3d 1, 4-5 (D.C.Cir.2000), the D.C. Chresh called the notion that the article "the" particularizes its subject "a rule of law."

But note of steep pronuncements involved patent claim construction, which has its own specialized rules, the first of which is that, wisterver possible, a claim is to be construed to make sense of the claim. No case has been cited to the Court, and I have found some, that applies justice Scalin's <u>Previous analysis</u> to reader a potent chain indefinite. I conclude that the cases gited in the preceding paragraph are inapposite here.

Foll 1. I am bolatered in this conclusion by the fact that Oberther did not cite these cases in its brief. My law clork found there while we were exploring Oberthur's argument.

Therefore, considering the "totality of the firmintions," I find claim III has antecedent basis in claim I, step (c) as a whole, and is not indefinite.

9. "Controlled Flow"

[11] The term "controlled flow" is construed to mean, "Regulated and directed forward continuous movement."

*385 The phrase appears in claim 16 of the <u>*207 pat</u>

(i) heating said core in said lamitator, in the presence of minimum first rate pressure, to a temperature which coinese controlled flow of said plantic which makes up said first and second plantic core aboets; (ii) applying a second pressure uniformly across said core for encapsulating said at least one electronic element within said controlled flow.

The messing of the planes "controlled flow" would appear to be self-evident. When a liquid "flows" is moves forward continuously. "Controlled" indicates some degree of restraint (Plaintiff's proposed term) or regulation or direction (my preferred term).

Definished claims the phrase means that " 'the first and second plactic core sheets' at least partially liqually so as to fully excluse the 'alsotronic element' at the min pressure and best applied to the 'core sheets' and allow the outer surfaces of the finished card before dye rabilization printing to assume a amonthment of approximately ,0005 inches or better." (Def. Br. at 41.)

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According to Defendant, "flow" is a reclimital term. (1d) McGraw Hill defines "flow" to mean "the forward continuous movement of fluid, such as gases. vapors, or liquids, through elesed or open channels or conduits." Defendant eiter the language of the encdiffications quoted above as supporting the presulte that the electronic element is fully exemperated by the first and second plastic core sheets, which at least partially liquely in order to "flow" and surround the electronic element. (Def. Br. at 42.) Defendant also notes that Leighton attendes in the '207 specification. that his invention lies in producing a contactless card. with a sufficiently steeooth and regular surface to receive due sublimation printing, and that this amouthnest cannot be achieved valeus the ours plastic sheets. ≠ least partially liquely and flow. <u>(16.)</u>

I agree with Defeathan to the extent that plantic, in the state we accountly encounter it, would not "flow." And we know from the specifications and claims discussed above that the landaction process at issue here involves heating the plantic core shoots. So I do agree that the plastic core sheets only "flow" because they have been heated, intentionally, during lamination. However, Defeatant's proposed definition of "exterolled flow" attempts to introduce into the definition of that phrase concepts that are not even found in the claims-a transparent effort to limit the meaning of this phrase to one disclosed arabediment. That is not the proper function of claim construction.

10. "Cuoling Said Care While Applying a Second Pressure"

(16) The phrase "cooling add core while applying a second pressure" is construct to mean, "Cooling said core during the time that a second pressure is applied."

The physics appears in claim 1 of the '207 putpaj; (i) beating said core for a first period of time; (ii) opplying a first pressure to said core for a second period of time such that asid at least one electronic element is encapsulated by said core; "356 (iii) seeking said core while applying a success pressure to said core.

207 metent, col. 6:31-36,

The only dispute between the parties is the meaning

of the wood "while," Plaintiff aspects that "while" means "during the time that," Defendant segme that the plasse means "that cooling starts later than, or at the stanc time as, applying a second pressure." (Def. Br. at 43.) In other words, Defendant sake me to conclude that the word "while" (hirly implies the moment at which the process of providing the pressure starts-and, in particular, to exclude from the ambit of the chrime may process that involves the application of the "second pressure" before the core cooling begins, even if the cooling and the second pressure proceed standing-occurs for some period of time.

Defendant's ettempt to limit the claim in this way in unavailing. Wether's defines "while" to meen "during the time that"-in other words, simultaneously or concertently. Defindant's suggestion that this word says or implies mything about the relationship between the time the cooling begins and the time the application of pressure begin makes no sense. The claim language neither says may implies anything about whether (1) cooling starts before pressure, (2) pressure starts before cooling, or (3) they seat at the same state. The states language requires only that the cooling and second pressure be happening simultaneously, regardless of the start sequence of the cooling and the application of pressure.

At the <u>Maximum</u> hearing, the parties illustrated this term with the example of taking a map "while my scommate goes shopping." The illustration works well. Clearly, as long as recommate # 1 is suppling at any point in time during recommate # 2's trip to the store-regardless of when the map commenced-recommate # 1 would have been nappling "while" recommand # 2 went shopping.

"Cooling Said Cure in Conjunction With the Concurrent Application of a Third Presset"

[12] Claim 66 of the '207 putest states, "(iii) asbequarity resting and core in conjunction with the association application of a third pressure uniformly across said care, said core including and [sic] upper and lower surfame. "207 others col. 5:29-32.

The phrase is construct to mean, "Cooling said core while at the same time applying a third propage."

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As above, Defendant urges that the phrase "In conjunction with" fairly implies that the cooling "starte and each at the same time a third pressure is applied." (Def. Br. at 44.) For the reasons recited above, I reject the Defendant's argument that these words suggest absolute synchronicity (though I question why the patentine could not have used the same terminology in both chima).

12. "Plactic Core Sheets"

[18] The plante "plastic core sheets" is constitued to mean, "Sheets of plastic between which the electronic electron is positioned."

The phrase appears in claim 1 of the 207 parent. For example:

A process for incorporating at least one electronic element in the manufacture of a plastic card, comprising the steps of: (a) providing that and eccord plantic core sheets; (b) positioning said at least one electronic directly between said first and eccord plantic core sheets between said first and eccord plantic core sheets between a core, said plantic core sheets defining a pair of inner and outer surfaces of said core; (a) positioning said core in a familiator apparatus, and subjecting*387 said core to a best and pressure cycle.

207 calent, col. 6:18-29. See also <u>'099 calent, col.</u> 5:13-17.

Defendant does not address this term.

Pleintiff sales me to construct the please, but unger that the meaning of the physics is clear from the warding of the subject chains. (Pl. Br. et 17.) I agree.

13. "Landcater Apparatus"

(12) The phrase "suminator appeartes" is construct to recan, "Equipment that is used to units two or more layers of anatorial, each as the core, by the application of host and prostore."

The specification of the '207 palent notes that the luminator apparatus is used for "the manufacture of plastic cards including at least one electronic element therein," '207 palent, col. 2:16-20, and that it is used to unite the plastic core about and the electronic ele-

ment, col. 4:22-5:5.

Plaintiff proposes that the specifications and the prosenation histories of the Patents indicate that a "luminator apparatus" is "equipment that is used to unite two or more layers of material, such as the core, by the application of heat and pressure." (Pl. Br. at 23-24.) Definition does not object, so I adopt Plaintiff's definition. (Pl. Br. at 23-24.)

I.4. "Millione"

[20] "Milling" is construed to mote, "saing a guachine to remove."

Cleim I of the 1999 patent rection a step of "soliting a region of said core to a controlled depth as as in flarm a cavity which exposes at least one contact pad of said electronic element." 1999 patent, col., 9:3-3. Claims 1 and 22 of the 1367 patent, recite virtually identical pure.

Plaintiff proposes that the ordinary meaning of the word railling, from the Dictionary of Camposite Materials, p. 91, is "[a] matchining process for vonnvul of material." (Pl. Br. at 25.) The specifications are consistent with this construction, stating that each can't tradergoes a controlled-depth milling operation to fram a window or cavity. <u>V69 patent</u>, col. 8:1-6. Defendant does not object, so I adopt Plaintiffs definition.

Conclusion

For the foregoing reasons, the disputed terms are construct in the manner noted above.

This constitutes the decision and order of the court.

S.D.N.Y.,2005.

Leighten Technologies LLC v. Obertiner Card Systeam, S.A.

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EXHIBIT 5

529bleih ONITED STATES DISTRICT COURT SOUTHERN DISTRICT OF BEN YORK 2 3 LEIGHTON TECHNOLOGIES, I.LC. Plaintiff-Counterclaim Defendant, 5 ¥, 04 Civ. 2496(00) 6 MARIONAN MENRING 7 OBERTSUR CARD SYSTEMS, S.A., Defendant-Counterclaim Plaintiff. 10 White Plains, M.Y. 11 February 9, 2005 10:00 a.m. 12 . 13 Before: 14 THE HOPOGRAPLE COLLEGE MARKEN. 15 District Judge 16 APPEARANCES 17 18 SUTHERLAND, ASSILL & BRESHAN, LLP -Atterneys for Plaintiff-Counterclaim Defendant 19 ROBERT A. GUTKIN BLAIR M. JACOBS 20 METL G. COHEN CHRISTINE OFFRICK 21 22 MAKER & NCKENEIE Attorneys for Defendant-Counterclaim Plaintiff JIMES DAVID JACOBS 23 FRANK H. GASPARO 24 Also present: HIREHILE CLAPIER, Oberthur inhouse counsel 25

> SOUTHERR DISTRICT RECORTERS, P.C. (212)805-0300

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all the petents, appears in all the claims. In a representative claim of the '207 claim up there, electronic element is claimed as being between said first and second plastic core sheets.

THE COURT: Let ma sen if I can - we've read all of this, so I can actually focus on some questions.

Your client claims a process, a process for enclosing scenthing in which you do not claim any kind of patent rights. at all, via the electronic element, in plastic to get it onto a card, right? You're claiming the process. You're not claiming the thing.

MR. GUTKIN: I believe that that's a correct statement.

THE COURT: You're not claiming any rights in the electronic element itself.

MR. GUTKIN: No. no.

THE COURT: You're just claiming the process for enclosing the electronic element, or encapsulating, or whatever the word is that gets used, the electronic elegant and embedding it in the card.

. MR. GUTKIN: That's one of the claims, that's correct. And in the letter two potents, there's also claims with milling the card.

THE COUNT: But it's the process, basically, of getting the element incorporated into the oard.

> SOUTHERN DISTRICT REPORTERS, P.C. (212) 805-0900

EXHIBIT 6

US005880934A

United States Patent [19] Bagkiri-Tchruni

(U) Potent Number:

5,880,934

[45] Date of Patent:

Maz. 9, 1999

[54]	BATA CARREST HAVING SEPARATELY PROVIDED INTEGRATED CIRCUIT AND MUDICITION COIL

[75] investor: Teliya Maghiel-Rhruni, Manich, Commenty

[73] Analgues: Giovente & Deveriont Carlott, Majoleb, Commence

[23] Appl. No.: 968,500

[22] Filed: Oct. 39, 1997

Related U.S. Application Date

e of Sm. No. 457,560, bloy 13, 1995, alon,

130	ereign A	pplication Priority Date	ı
May 11, 199	4 DEJ	Germany	44 (4 (87.4

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361/889: 361/820 [58] Fluid of Search . .. 235/487, 488, 235/492, 449, 451, 441, 491; 257/678, 679; 361/797, 761, 782, 813, 811, 821, 764, 807, 809, 820, 340/825,44; 455/269, 250/267, 252, 300, 297

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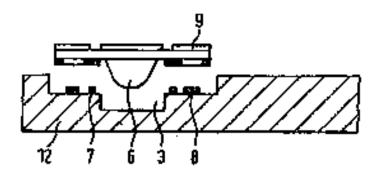
Primary Examiner - Depute System Anorany, Agent, or First - Survius, Davis, Miller & Moster, LLP.

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ABSTRACT

The inversion relates to a data currier competiting a card body and an integrated circuit commeted electrocondussively via constant channels with at least one can proving the purpose of power supply motion data exchange of the integrated circuit with external devices. The investion is characterized in that the integrated opposit and the contact classical form a separate module layous in the ari and the cold in disposed on a conditionly countriested from one or many hyans in known fushion. The coil is preferably formed as a No ool.

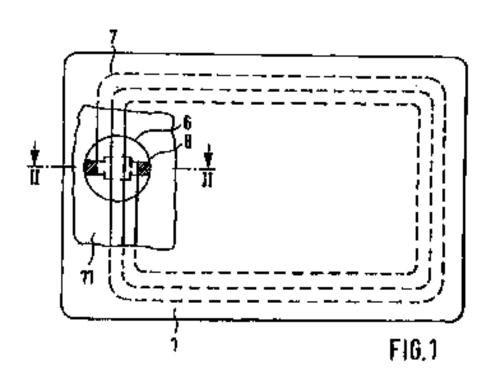
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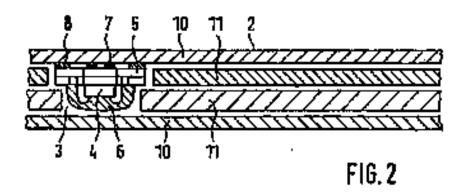


U.S. Patent

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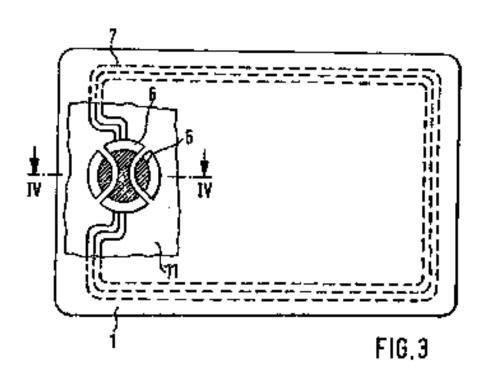


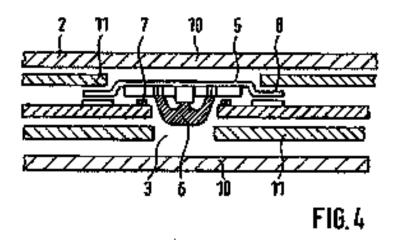


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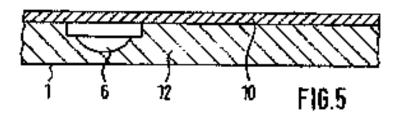


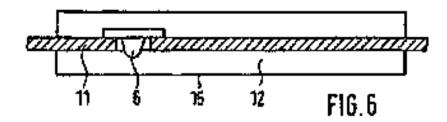


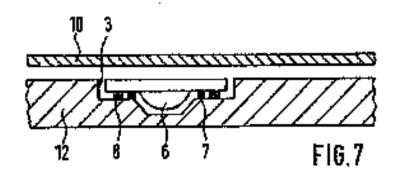
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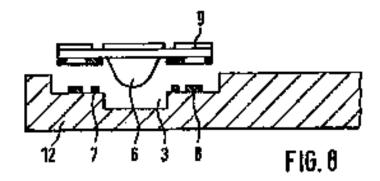
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Sheet 3 of 3









5,880,934

DATA CARRIER HAVING STRABATELY PROVIDED INTEGRATED CIRCUIT AND INDUCTION COIL

This application is a continuation of application Sec. No. . . 08/737,388, filed on May 11, 1995, (abundance).

This investion relates to a data currier exceeding to the prosection of chalm 2. The immunion also relates to a method

for producing a data carrier.

Data carriers with integrated circuits are sund to the large. of credit courts, bush courts, credit payment cards and the blos to a great warrary of accelera scatters, for example in continue money insurfac or in the intra-company area as access anthorization. With a great manber of those data couries. prover is repetied and/or data coplanged with external devices in contacting fashion via the outer contact surfaces of an alternate module. Since the copies surfaces for connecting the data curriess to a conting/ording device are expected in these polar set data corriers there is a starger of the contact envisors being solled, which may had to prov contacting and thus facily data transmission between the at data currier and the corresponding scaling/writing device of the terminal. Regardings of that, finity data transmission one also occur due to facily positioning of the contact notices to the standing/orthing device of the terminal. The goods the showsmentforce disadvantages data carriers with # consection, e.g. inductive, coupling six already known from the prior art.

EP-A I 0 376 062 discionare g. au sistemato modelo and section for producing the module. The known module equives an insulating currier film and a citip with an to integrated minorit which has at least two interconnecting leads and is disposed on the carrier film. On the same able of the carrier him of the module thate in a roll. The coil, which is part of the module, passing inductive coupling between the module and an external device. The coil is as executed at a sing-abayed, wire-wrapped cold statuturding a space which completely because the oldp and the elements electromedistrively counciling the leads of the thip with the leach of the cell, and it authorporally alled with an electrically involving and hardwood viscous compound. After he so completion the known module is installed in a card, the cold gramming effective protection of the chip and the electrocaschenies comporting abunduts against abundu to which

that court is expensed during use.

While the arrangement of the coul on the module pro- 45 vides good promettes for the ship, this specific structure of a modele sesses that specially constructed modeles must be used for producing a data corrier with soutsotion coupling. This has the distantentage that a special method is required or specific work must be provided for producing the mod- so ules. Perfections, owing to the special production of these manifes conventional cons, i.e. modules without a coll. cussed be used for producing a data carrier with contactless coupling. Finally, high come can using with small regular data coupling. Finally, high come can using with a specially produced as smaller, alone the latter great be manufactured separately. All this meant that these special modules begain the firsinches of producing data consists with contactions compling.

The invention is then based on the problem of proposing a clean currier with contaction compling which is state; to an

This problem is solved by the features sound in the independent obtains.

The hards idea of the invention is to decomple module and cold, whereby the module can be preduced separately to as known further and the cold is manufactured independently of the models and applied to a layor of the card body.

The coil can be disposed for example on a cover layer or co to inner layer of a makillayer card budy or on an injection molded card body part. The roll can be printed on the card body byer e.g. in wire-wrapped form or the sa an electroconductive layer by the screen printing excited a.g. by means of set alastromedicable achorine. The only one aboreatherly he proched part of a metal follow stated part of an cleans an entirely county pleade files and glood to the card body layer. Purther it is also possible for the cott to be attracted in the card leady layer in the form of an electroconductive layer by the hot strapping method. The coil is professibly formed to a find only, the basis of the coll and the content elements of the module being standardized with respect to location and position in the oard body to relation to each another, for commute disposed directly appeals each other, thereby permitting a simple electrocted active con-cection to be established between the lands of the cast and those of the module. This can be done for example with the help of an electroconductive adherive or size by moses of anidering or other common techniques familiar to the expect. Finally it is sound that the models can also be susceed as a bybrid module which additionally has outer contact methods

for connecting coupling with external devices.

The advantages achieved with the leveration country in particular in that one can up the modulus preduced in oneventional facilies, i.e. modules without colls, thereby giving more flexibility to the production of data carriers with controllers coupling. This reconstitutes so great change in previous module production, requiring no special new tools or new method for producing the modules. Furthernore, das to the commoness of the cold on a cond body layer the invention also pussels high familiality in designing the upil, for example in terms of the sectional informace, e.g. the ber of turns, sother cold sother, who discusse, sec., and also high BerildRy in selecting the technology for restining the cold on the card body layer. Parliampowe, the larranger, permits simple opposition of the modele with the cell, in pasticular whose the could hands and the contact allowants of the mointo which are electrically conserned with the coil leads bute at a collect but noticed to easier a braidening on body. Also, the structure of the module can be obsern theely including the location and position of the contact planetes; for example the contact elements of the module two be obtained from an electroconductively contact carrier film or punched out of a motal trace by the lead frame technique.
The integrated electric out to give no a control area of the provided leaf frame how e.g. with the help of an affection, The electroconductive composing at the imaginated obesits with the controt elements of the module can be effected a.g. in known faction by the wire-bonding or the so-called TAB technique. These techniques and the different designs of the modules in this connection we familie; to the suport.

Further properties and advantages of the investion will reach from the following dentifying of different embodi-ment examples, which are explained more closely with reference to the description.

Perfor embediement and advantages of the investige will send from the subclaims in well as the drawings, in

PIG. I shows a data constor its plan view, the module and a part of the cell being shown as a detail without the appear क्लास भारत,

PIG. 2 shows the detail of the data carrier according to 770. I in a medional view,

FIG. 3 shows the plan view of a further embediment example of a data carrier, the module and a part of the coal being shown as a detail,

5,880,934

3 PIC. 4 shows the detail of the date currier according to FIG. 3 is a sectional view,

PIG. 5 above a bather embadiment consulo with an injusting molded eard body part,

PIG. 6 shows an injection most with as insured card 5

PRO. 7 shows a hybrid attribute and a card budy part with

PIG. 5 shows a constrainer module with the coursepostkee card body yest sad coll.

PIG. 1 above data carries 1 computing card body 2 with oall 7 disposed thereto and commented electroscommutively with markets fo

PLG. 2 shows enlarged and out tree to scale a cross section along the broken line to Fig. 1 within the detail as which includes the module, a past of the east backy and the utill. Module 6 tochedos at least use integrated client 4 with two hads which my opposited electroconductively with contact elements 5 of the module. The module degree in FIG. 2 consists e.g. of a Kapton carrier flow which has 20 contact elements 5 on our side. The currier film has in known fastion accordingly positioned windows for receiving the integrated elevals and the grading through the expeductor wires from the cheat, to the contest elements. For protection flow mentantial loads the integrated alread and 19 Chrodostor where case he can with a causing companied. In the embediment example of a produle shown bore, the contact electricals are applied to the exertire that as up electroconductive conting, then being connected e.g. by wire-beating with the leads of the integrated chould

The data carrier shown in FIG. 2 is proclased e.g. by the isoninating technique floridier to the expect, whereby the september precises of module without a cold in leastness of module without a cold in leastness of module. a untilities cost body. Multilityer and body 2 includes apper and lower cover layers 10 as well as at least use latter 30 card layer 11 beying exilable opening 3 for mouleting the module. The restricts restincts of cover layers 20 are goverally purvioled with a print. On one of the latter temporar of cover beyons 18, in this embodiment example (to upper cover tayer, there is call 7 which forms a sout-dobbted product 40 with card body layer 10. Coll leads 8 see positional up us to be disposed directly appeals contact characts \$ of models 6. This allows simple electronomiestive connection of the contact aleganote with the cold hads. The alectromoutlenties representation can be achieved e.g. with the help of an elec-troconductive adhesive. Chil 7 one e.g. be printed on a cond body layer by the acreen printing method by means of an electromorphotive adherive or he updied to the out body layer is the form of an electroconductive specieg by the last stamping resthod. Alternatively, coil 7 cas also be presented. se out of a model foil or se obstroconductively control playtic this eaf he disposed on a layer of the cont body. The spil can also be farecard to the card body layer as a finished who wrapped coil without a cers, e.g. with the help of an adherine.

PIGS. 3 and 4 show a further embediency exempte of date currier 1. It differs from that in FKI. 2 exceptially only to that cold 7 is disposed on importance of of case body 1. This instr bear of the cord body Elevise has astrable opening 3 for receiving module 6. Contact alternate 3 of the a module are preferably observed in this endoclinear, which allows a simple realization of the electroconductive connec-tion with hash 2 of the coil. This embeddment has the silventage that items byces 11, which them the court falsy of the data carrier, can be prepared independently of the prioring operation of cover layers 20 of the data carrier for mosetting cold and numbels, in the embeddenical examples

described up to now, the data carrier was productely pro-decad by the landarding technique. Of course other techmiques our size be applied, for accomple to set ion modeling or the accounting approach. Those techniques are familier to the caped and will thus he captained only brinkly in the followng embodiment eram

RIG. 5 shows a greatly extensioned view of the semifainted product already shows in cross section in FIG. 2. which includes cord body layer 18 with cold ? do thereon whose leads are electrically connected with the contact elements of module 6. This sensi-finished product one also be mounted e.g. on injection modeled card body part 12, which is provided with a suitable rooses for receiving the module, and le connected with the need body part in known (Malaine

FIG. 6 shows a greatly schematized view of our below 11 with methic 6 and coil 7 already shown to \$100. 4. This superately produced manifestion mobiling. For this perpose the mod latey with module and sail is introduced into importion model 15 to known furthing and molded with a

plastic mainfail which then forms and body part 12.

Fig. 7 shows a solutionistic view of injection medical and body part 12 with two-step recess 3, leads 8 of cast 7 being disposed in freely accessible limites on the shoulder areas of the person. Modele 6 can this be installed in recess. 3 of each body part 12 to simple faction for example by the burner mounting approach, it being easy to realize the obstraconductive commutate of the call leads with the occinct elements of the technic Subsequently, printed cover layer 10 cm to connected with injection moided and body put 12 for example with the help of an adhesive layer.

PIG. S shown Sobrid speciale 6 which from its addition to cell 7, outer contact serious 9 upping the purpose of contacting power supply und/or data exchange. Hybrid module 6 ms. Marwise be installed in specially provided rooms 3 of injection molded cast budy part 12 is simple fashion by the issown monating approach. For mounting the module one can can for example a contact adhesive layer or a thermally antivated adhesive layer. The application of a printed cover layer as above in PIG. 7 can be posited been, since the dealers printed image is already taken into account during espection modeling of the card body. In this case the eard body countries of only one layer.

l clubs:

L A data confor having a body computatog:

at least one larger;

en integraled circuit; and

at feast one coil having back beings by throad with the coil and founding part of the body; characterized in that: a module learing the integrated electric and at liquit (wo contact elements is electrically commeted via said contact elements with the loads of the coil:

the module and the layer of the body are provided equatoly;

the module faither companies own contact surfaces; the body has a two-step recess for receiving the treatmin, the two-step recent having a flat map and a second step which in deaper time the first step; and the cull in disposal on the first step.

2. The data company of civils 2, the sectorized in that the st

least can keyer of the body comprises a cover byer.

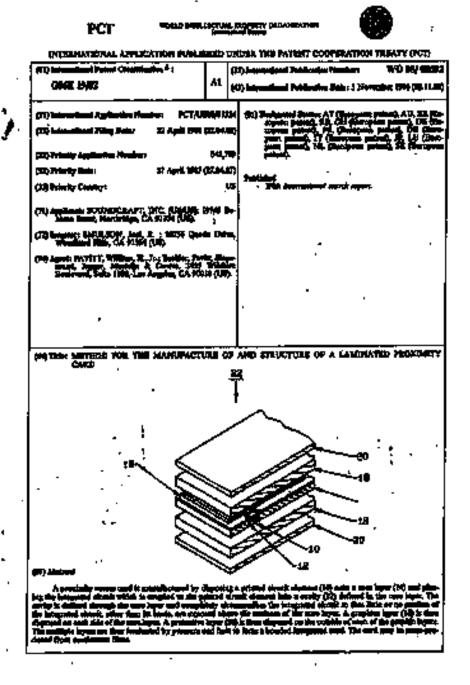
3. The data certier of claim 1, characterized in that the at level one layer of the body comprises as insulating layer and in that the coil is formed as a flat coil which is given in the introducing layer of the body as a finished wire excepted coil.

4. The data corrier of chiles 1, characterized in that the poli extends prenctially over an eating auction of the body.

- 5. The data curries of clidin 1, characterized in that the leads of the cell and the contact elements of the module are disposed opposite such other within a piece of the body.

 6. The data parties of claim 5, characterized in that the
- leads of the coil are glace electroconfuctively to the control | \$ elements of the module.
- 7. The data currier of cities 1, discretizated in that the at least one layer of the hopy comprises no lance layer of the body.
- least our layer of the leasty comprises on injection quality. body yea.
- 9. The data currier of claim 1, characterized in that the at hant one layer of the tody comprises as familiating layer of the body and in that the coil is printed on the introlating layer 15 of the body as an electroconductive layer.

- 10. The data carrier of claim 1, characterized to that the call is attenued in a layer of the at least one layer of the body by a but atmenting method.
- 11. The data certist of chiefs 1, characterized in that the ould in personal cost of a metal field and disposed an a layer of the at least one layer of the body.
- 12. The data carrier of claim 1, observed mind to that the coll is penched out of an electroconductively coated plants: il. The date earlier of claim 1, characterized in that the at 10 film and dispense on a layer of the at least one layer of the body.
 - 13. The data currier of claim 1, obstacostized in that mid body consists of our layer.



P1909

